The Builder.

No. CLV.

SATURDAY, JANUARY 24, 1846.

THE General Post-office, in St. Martin's-le-Grand, was commenced at the latter end of 1823, and finished in 1829, at the cost of nearly 240,000*l.* including the furniture and fittings. A general invitation to forward designs had been addressed to architects in the first instance, and was accepted by 89 persons, who submitted nearly 100 designs; no one of them, however, was considered practicable, and Mr., now Sir Robert Smirke, being applied to, designed and executed the building as we now see it. The front extends 390 feet; the width of the centre portico is 75 feet, and its projection 25 feet; the columns are 37 feet high, and 4 feet 2 inches in diameter.*

Although accommodation was provided for a larger amount of business than was carried on at the time of its erection, the increase has been so great that, as we mentioned in a previous number, Mr. Sydney Smirke has been called on to construct two large additional rooms, for sorting letters and newspapers.

The new offices are built over the existing offices of the inland department. One of them is 105 feet long by 33 feet; the other is 90 feet long by 50 feet. For executing the former no great peculiarity of construction was required, the new roof being carried by iron-arched trusses, cast in two pieces. In executing the latter, it was necessary, although the span was considerable, to avoid encumbering the lower floor with any pillars or intermediate supports of any kind. The new roof is supported by seven iron arches, each cast in three pieces, and these support also the floor, by means of iron suspension rods, two depending from each iron arch, and dividing the bearing into three equal spaces, as represented by the engravings at p. 42. To these suspension rods are bolted iron bearers, which form the tie, or chord, of the arches, and which are also cast with sockets, to enable them to lay hold of all the timbers of the floor and of the old ceiling of the inland-office beneath.

The chief difficulty in executing this work consisted in the necessity of keeping perfectly undisturbed the old ceiling, with all its heavy cradling, and of avoiding the adoption of any expedient whatever, that could impede for a moment the regular transaction of business below, where a multitude of clerks are constantly engaged.

These ponderous masses of iron were lifted and carried over the ridges of the intervening roofs, and gradually lowered into their places without the slightest injury or accident; a task which would scarcely have been possible but for the facilities afforded by that ingenious modern contrivance, the flying windlass. Each of these enormous frames of iron was put to a severe test, and proved perfectly rigid; shewing a truth of work highly creditable to Messrs. Dewers, the founders, whose steam planing-machine enabled them to give to all the parts bearing on each other, a far more exact and uniform surface than would have been otherwise practicable. The section and parts at large will sufficiently explain the construction. The rooms are lighted by skylights.

An ingenious machine has been constrived to raise and lower the letters and letter-carriers from the bottom to the top of the building, and *vice versa*. It consists of two endless chains worked by a steam-engine, which carry in rapid succession a series of shelves, each large enough to hold four or five men with their bags. The chief difficulty, of course, was to cause the shelves to pass over and under the pivots on which the chains turn, at top and bottom, in a horizontal position, and this seems to have been perfectly attained. Indeed, the works generally are satisfactorily executed, and reflect credit on all concerned.

Description of the Engravings.

Fig. 1. Section of roof over the sorting-office (with a portion of that over the letter-carriers' office), and the ceiling of the room beneath. The rafter selected is one from the centre of the room, in order to shew the details of the skylight,—the radius of the circle is 25 feet, struck 2 feet 3 inches from the floor. The beds and joints of the rafter are all worked fair and true, and faced throughout their entire length to an even surface; this was done either by the planing or slotting machine, or where that was found impracticable, they were chipped and brought to a fair bed with the file. All the bolt-holes were rymed or drilled through their entire length. The whole of the wrought-iron bolts are of the best faggotted S. C. iron; those which connect the ribs of the rafter, as well as the principal bolts throughout, were heated towards the middle and head, and shrunk after the nuts were tightened. The suspension-rods, 2¼ inches in diameter, are of the best Crawshays iron, and were tested to bear 35 tons previously to their being fixed.

Fig. 2. Plan of the back of one of the principal rafters, shewing the sockets to receive the purlins.

Fig. 3. Plan of bearer to floor, shewing its connection to principal rafter, and the sockets to receive binders of floor.

Fig. 4. Plan shewing top of principal and stay-bar to frame of skylight.

Fig. 5 shews the face of centre-joint of principal truss under skylight.

Fig. 6. Plan of the side beds in principal truss.

Fig. 7. Details of wrought-iron suspension bolt.

Figs. 8, 9, and 10. Details of joint and section of bearer.

Fig. 11 shews the mode of supporting the binders of old ceiling from the new binders of floor.

Fig. 12. Section (the reverse way) of template, and standard of principal truss.

* An account of the building, with plan and elevation, will be found in Leed's edition of "The Public Buildings of London."

SALE OF THE CHURCH OF ST. BENET FINK.—The internal fittings, &c., of this church were disposed of by auction a few days since. The sale was most numerously attended, and many of the lots realized a price much beyond their actual value, from the circumstance of their connection with Sir Christopher Wren. Lot 12, the carved oak poor-box, with lock, &c. (date on the lock, 1683), fetched four guineas. Lot 17, the carved and panelled oak pulpit, with sounding board, &c., went for fifteen guineas. The paintings of Moses and Aaron, the carved and panelled oak fittings of the altar, the marble floor of the same, and the two tablets with inscriptions in gold, were purchased for 50*l.*

FINE ARTS IN IRELAND.—The fine arts have been pressed into the service of "Repeal" in Ireland. Engravings and books are to be given to persons who collect repeal rent to a certain amount within a given time!

BIOGRAPHY OF ARCHITECTS.

CONTRIBUTIONS TOWARDS A LIFE OF INIGO JONES.

IN contemporary literature, a large amount of labour is at present directed towards the biography of eminent men. Any claims to distinction through services in the field, or the senate, how little soever fitted to rank their authors with the truly great, who have sent their own names down the stream of time, are sure to meet with recognition from some ardent panegyrist or admiring relative. How remarkable then does it appear, that the biography of the great in art has yet to be written. The "Lives of British Artists," by the late Allan Cunningham, are rather pleasant notices of the individuals, and the style of art in which each excelled, than any thing attempting the extended range, which the interesting nature of the subject seems to call for. Designed merely for popular use, they are well adapted to their object, and would supply some valuable suggestions in any future biography. The unpublished documents connected with the history of art, and the lives of architects in England, must be very numerous. Many of the drawings of Sir Christopher Wren, still existing in the libraries at Oxford, are hardly known to professional men. Of Inigo Jones's designs, a very small number have yet been published, and it is even uncertain, what buildings were really his works. Much interesting matter might be obtained from the Harleian MSS., and from other sources, concerning his office of Surveyor of the Works, his designs for the court masques, and the comparative cost of labour and materials at that and the present day. In the accounts of the revels at court in James the First's reign,* Jones's name is frequently mentioned; and here and in the MSS. in the Harleian Collection, allusion is made to his remuneration, his models, and even to the livery, which in accordance with the custom of those days for those attached to the person of the king, he wore as the court architect. Mr. Peter Cunningham has also contributed some particulars to the "Papers of the Shakspeare Society," lately published.† In the Lansdowne MSS. may be seen the "Original plots and profiles of scenes erected at the New Masqueing House, being eight in number, by Inigo Jones." Reference may also be made to Jones's "Stonehenge Restored;" to his son-in-law's defence of the same book; to the "Audit Office Enrolments," quoted and first published by Mr. P. Cunningham, and to the fac-simile sketch-book, executed from the original in the possession of the Duke of Devonshire, at the expense of his grace. From these and other sources we find, that the payments to the then Surveyor of the Works were as follows: "Fee at 20*s.* per diem; one clerk, 6*d.* per diem; expenses when he rideth, at 4*s.* per diem; boate hire, at 4*s.* per diem."—*Harl. MS.*, 1848, fol. 216. In 1610, the salary of Simon Basyl, the surveyor, was as follows (*Harl. MS.*, 1857, fol. 18):‡

THE WORKES.

Surveyor	Mr. Basill	Fee 2*s.* a day—36*li.* 10*s.* One Clearke att 6*d.* a day, 9*li.* 2*s.* 6*d.* Expenses when hee rideth, att 4*s.* a day, esteemed at ..53*li.* 5*s.* 8*d.* Botehire....13*li.* 6*s.* 8*d.*	112*li.* 5*s.* 8*d.*

Inigo Jones's first office under the crown, which was that of Surveyor of the Works to Henry, Prince of Wales, ceased in 1613, after the death of that prince. Jones was at Vicenza, on his second visit to Italy, in Sept. 23rd, 1613, and at Rome in the following year. Simon Basyl was still the surveyor to the crown, but at the end of the year 1615, his salary was discontinued, and Inigo Jones appointed surveyor, with pay, commencing from the 1st of October, previous, at the rate of 8*s.* per diem for his entertainment, 80*li* per annum for his recompence of availes, and 2*s.* 8*d.* per diem for riding and travelling charges "to sundry of His Majesty's Houses." This is given by Mr. Cunningham from the accounts of the paymaster of the works, preserved in the Audit Office. The king's warrant to Lord Hay for the issue of livery from the royal wardrobe, for Jones is dated 16th March, 1616. According to a MS. in the British Museum this livery

* Extracts from the "Accounts of the Revels at Court in Elizabeth and James's reigns; with Introduction and Notes." By P. Cunningham, Esq. Printed for the Shakspeare Society: London, 1842.

† "Inigo Jones and his office under the Crown," in the Shakespeare Society's Papers. 2 vols, 1844-5.

‡ Also quoted by Mr. Cunningham.

consisted of five yards of broad cloth for a gown, at twenty-six shillings and eight pence the yard; one fur of budge for the same gown price four pounds; four yards and a half of baize to line the same, at five shillings the yard; for furring the same gown, ten shillings, and for making the same, ten shillings. Here follow other particulars concerning the yearly delivery of this costume of an architect. At a later period in his life, Jones, when not attired in his official capacity, was noted for his rich dress of velvet, which seems to have been the occasion of some of the satire of which he was the constant object. The value of the livery, according to a document in the Audit office, was 12*l.* 15*s.* 10*d.* In 1629, a grant of 46*l.* per annum was made by Charles I. to Jones, as an equivalent for house rent.

Jones was the friend of two sovereigns, and of the greatest men of the time, amongst whom was the painter, Vandyke. He was himself a landscape and perspective painter of great ability. In the scenery of the masques, he produced many of his finest architectural designs. In the machinery and accessories, he must have displayed great skill, introducing —as we are told by Ben Jonson — many beautiful and novel effects. Probably no other architect,—Brunelleschi, perhaps, alone excepted—ever had so great a share in changing the style of architecture in a nation. In considering that change, it is to be remarked, that the style of Jones himself underwent great alteration. His first manner was the union of the style he had acquired in Italy, with the previous fashion, which he was unable to subvert; his late style was produced, when he had perfected his knowledge by a second visit to Italy, and, by the scenery of his masques, succeeded in rendering other views in matters of taste familiar to the nobility.

Jones's annual receipts from the crown are thus given by Mr. Cunningham*—

"Entertainment at 8s. per diem ..	£146	0	0
Recompence of availes	80	0	0
Expenses when he rideth, esteemed at	53	5	8
Value of livery	12	15	10
Equivalent for house rent	46	0	0
	338	1	6

or about 1,500*l.* of our money." Several inaccurate statements having been printed respecting his allowance as surveyor, we may quote the following:—

THE WORKES.†

Surveyor	Mr. Jones	Fee 36li. 10s. One Clearke at 6d. a day. Expenses when hee rideth, at 4s. a day, esteemed at £53 5 8. Botehire, at 20d. a day, £13 6 8.	£112 5 10

This is about 498*l.* of our money.

Jones's disquisition on Stonehenge, in which he attempted to prove, that it was a Roman temple, was commenced at the command of James I., but was not published till 1655, after the artist's death. The copy dedicated to the Earl of Pembroke and Montgomery, is stated to have been full of comments on the architect, in the handwriting of the earl, who calls him "Hinico Jones, *alias* Iniquity Jones, a justice of peace and of the Quorum i and Custos Rotulorum," along with other statements, entirely devoid of foundation. This very copy, it seems, "was in a bookseller's catalogue less than a year ago for 6s. 6d!" We wish some one would whisper to us the whereabouts of that bookseller. Mr. Cunningham, in concluding his interesting paper, announces that he has access to an account of "Charges incurred in building a Banquetting House at Whitehall, and erecting a new Pier in the Isle of Portland for the conveyance of stone from thence to Whitehall;" and we regret, that the extracts have not appeared in the second volume of the Society's papers, as at first proposed.

E. H.

ARTISTS' GENERAL BENEVOLENT INSTITUTION.—A body of artists, following the example of the authors, have arranged a private subscription dramatic performance in aid of the fund of this very useful institution. It is fixed to take place on Tuesday next, at the St. James's Theatre, under the direction of a committee of well-known men. Douglas Jerrold has written an address expressly for the occasion.

* Inigo Jones and his office, &c., *ut supra*.
† Harl. MS. 4257, quoted by Mr. P. Cunningham.

PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE.

THE second lecture of this course was delivered on Thursday, the 15th instant, at the Royal Academy, and contained much new and interesting matter. Mr. Cockerell commenced by stating, that he was about to offer some remarks upon the restoration of medieval architecture in this country, and the question—how far the imitation of other rituals was adapted to the wants and circumstances of the present day; the distinction between what was merely copy, and that which was design; with the history of the revival of Gothic architecture in England and France; some of the fundamental principles of the style, and the interpretations of Vitruvius by Cæsarianus, and the early commentators. Veneration for the monuments of antiquity was one of the most praiseworthy sentiments, which it was essential in every respect to foster in a nation. The Romans had once been reproached by Horace for the want of this feeling, and that author had urged in strong language, that the road to greatness would never be attained, whilst the regard for national monuments was deficient:—"*Donec templa refeceris*," said he. But, whilst this respect for ancestral institutions and works of art was felt, we ought not to forget what was due to ourselves, nor the respect, which we should have for posterity. The reproach of imitation certainly attached to us in our practice of Gothic architecture; we copied the forms indeed, but the soul and character were wanting; our architecture belonged to another age, and for this reason, that we did not possess the *principles* of medieval art. Regard for antiquity lost half its merit, when it degenerated into mere fac-simile reproduction. Nothing could deserve respect, but what was sincere and true; and the more exact the copy, the greater was the failure in that point, which was the highest merit of the original. Referring to the influence of the Cambridge Camden Society, he said that it had discovered itself in pursuit of other objects than those of art, and consequently had been put down.—That it should be our endeavour, in applying old forms, to produce new combinations, at the same time representing ourselves, and the circumstances of the present day.

The professor then proceeded to consider, what course was requisite to obtain the desired result. That mode was carefully to investigate the history of the rise and progress of Gothic architecture, and to discover the geometric principles of design, as had been pointed out by Professor Willis; and in considering those principles, Mr. Cockerell said, that it was his intention to offer some suggestions concerning their origin, which he believed had not yet been made. He had always greatly admired the style, but at the same time had not hesitated to deprecate the imitation of its forms in the manner, previously adverted to. He then sketched the history of the revival, and spoke of the influence of Horace Walpole, and of Batty Langley, James Wyatt, Grose, Bentham, and the publications of the Society of Antiquaries. He considered, that Mr. Essex, of Cambridge, had done more in the examination of the principles than any one of his day; his papers in the "Archæologia" were extremely valuable. He passed a high eulogium upon the industry of Carter, and of his successor, Mr. Britton. As Dr. Johnson had shewn, how a single individual could better compile a dictionary than could the whole French Academy, so Mr. Britton had done more for the illustration of Gothic architecture than the whole Society of Antiquaries. He ascribed great merit to Rickman, as an illustrator of the different styles, but condemned the practice of looking first at the orthography, or appearance of a building in elevation, and *lastly*, at the icnography, or arrangement of the plan. This was the inversion of the proper and natural course, and was not the system he should adopt. In allusion to Professor Willis, and his great services in the solution of many difficult questions, he said, that the Cambridge professor belonged to that class of patient investigators, of whom Wren was the head. The principles of the architecture of Wren were those of the architecture of the middle ages, which that architect was well acquainted with, and greatly venerated. St. Paul's Cathedral was built on Gothic principles.—Ware's book on arches was a work of great value.—He next referred to the labours of Soufflot, the architect of the Pantheon at Paris, who occupied a similar position in the progress of art, to that which Wren held in England. He entered into some comparison of these eminent men, saying that the Pantheon was built in imitation of St. Paul's Cathedral; but that in the constructive part, the imitation of medieval architecture was carried to too close a point; the supporting piers were too weak, and a failure had been the consequence. Soufflot had collected together many drawings of Gothic buildings in France, and these drawings had been seen by many English architects, but had never been published; and it was not known where they were at present to be found. He said, that it did not appear, that the Gothic architects understood mathematics: dynamics and stereotomy, they understood empirically; and they often produced surprising works, but often failed. Thus, at present, we had done little more than collect the materials for correct analysis, but, from which it could be shewn, that no random or caprice entered into the fundamental principles of the style. The present state of the Church was in the highest degree favourable to progress in architecture; the establishment was awakening from the apathy in which it had slumbered, and, incited to exertion, would derive new strength from the attacks of its enemies. In fifty years hence, they might hope for great results. He then quoted an eloquent passage from the discourse of an eminent modern divine, in argument for an increased attention to the architecture, and decoration of churches.

Mr. Cockerell, in continuation of his remarks on the discovery of the principles of Gothic design, said, that he had long suspected, that much might be gleaned from the old translators of Vitruvius. The greatest difficulty in their examination was the obscurity of the text. In this expectation he had not been disappointed, having found a rich harvest of materials, by which facts were elucidated, that previously were inexplicable, and which materials he now proposed to lay before them. He said, that it was a remarkable circumstance, that the architects of the middle ages deemed their churches an exact expression of the principles of Vitruvius. Had he not visited Germany, he said, he might long have remained in ignorance of the remarkable similarity, that existed in the plans of old Gothic buildings, and those given by the old commentators, and translators of Vitruvius. Of these men, the most important was Cesare Cesariano, who wrote about 1520, and was conservator of Milan Cathedral in the third century after its erection. That architect himself was half a Goth; and constantly referred to Gothic buildings to illustrate the text of his author.—The translation by Cesariano is a very scarce work, and the diagrams shewn by Mr. Cockerell were taken from the work of Gianbattista Caporali (which he also exhibited), who had given them as exact copies of those of Cesariano. The different forms of temples, described by Vitruvius under names, now understood to refer to different arrangements of columns circumscribing the *cella*, by the early translators were explained in an entirely different manner. The reference to columns—*peripteral*, *pseudo-dipteral*, &c.—was understood, as applying, not to the exterior, but to the interior; whilst *tetrastyle*, *hexastyle*, or *octostyle*, were supposed to refer to the number of projections, or buttresses. Thus, the temple *in antis* was represented as square in plan, with four central columns.

The elevations, in the diagrams exhibited, were all in the Italian style, the front of the "temple *in antis*" having four pilasters. The plan of the prostyle temple was similar to the foregoing, but the pilaster at each angle had a column advanced in front of it. *Amphi-prostyle* was supposed to mean that the projections were continued in the flanks. From the farther end of the plan projected the tribune, or chancel, with semi-circular apse. This arrangement was compared with that of a Gothic church in Germany, and the plans of each were found to correspond. The elevations also resembled each other in general arrangement, and in the position of the turret ("hecuba tholata"). The professor considered, that this interpretation of Vitruvius was well known to Sir Christopher Wren, who belonged to the last lodge of Freemasons, which may be supposed to have treasured up the secrets of its predecessors,

and who had followed out the arrangement in many of his churches. Drawings of several of Wren's churches were here exhibited, and the attention to a system of proportion was certainly very remarkable in them, as shewn by lines, intersecting the different parts, drawn in red. Mr. Cockerell remarked, that the arrangement of the "temple *in antis*" was adapted to the Christian religion from the symbolic allusions, which might be drawn from it; the three divisions representing the Trinity, and the four columns the four evangelists. He pointed out, that the angles of the different plans were strengthened by projections; and this was in accordance with the directions of Vitruvius, as to increasing the dimensions of the angular column. These large counterforts were to be noticed in many old Roman buildings. He quoted from Cesariano in illustration of these remarks, and in reference to the termination of the chancel or tribune, for which the author gave several forms, but said that the "learned" preferred the square termination, as practised in most English cathedrals. This led to some concluding remarks on the state of learning in the 15th century, which was a state of profound ignorance, and yet high respect and veneration for classical knowledge, illustrative of which he read extracts from Lydgate's Book of the History of the Siege of Troie, in which the architectural splendours of that city were represented under the forms and decorations of the middle ages. * *

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the meeting on Wednesday, the 14th instant, referred to last week, Mr. Pettigrew, the treasurer, in the chair, more than fifty volumes of books and pamphlets were presented by various English, French, and German authors to the society.

One of the principal attractions of the evening was a beautiful bronze figure of the goddess Ceres, of exquisite workmanship, sent to the society by the Duchess of Beaufort, with some gems discovered in the excavation of a Roman villa near the ducal residence. Some Roman vessels, and curious round polished stones were also exhibited, on the uses of which, whether for slings, deposited as relics, or for trituration, no positive opinion was given. A very curiously-wrought hilt of a Scottish claymore, with a rude portrait of Prince Charles Stuart upon it, was also exhibited. Mr. Fairholt's careful tracings and drawings, copies from the mural paintings discovered a few weeks since in Carpenters' Hall, London Wall, excited much attention. Several communications of great interest were read, including one by Mr. Croker, from the pen of the Marquis of Worcester, author of the "Century of Inventions," addressed in vain to Charles the Second, for indemnification; he and his father having expended nearly a million of money fruitlessly in the cause of Charles the First; the eccentric marquis alludes to his invention of a water or steam-engine of great and marvellous power.

Mr. Roach Smith read a paper from Mr. Jewit, containing particulars of the ancient hospital of St. Giles, for lepers, at Shrewsbury, and the miraculous virtues of the waters of St. Winifred's Well, in North Wales. Some elucidatory remarks were made by a gentleman present, as to the component qualities of the water, and its freedom from sulphate of lime. The moss from this well of St. Winifred's is, with pious Catholics, to this day considered a specific for many diseases; and the crutches, sticks, and biers still hang suspended among the rich architectural tracery of this picturesque well as trophies of the miraculous effects of its pellucid waters. A long range of mountains, stretching half way from Chester to the sea, are the natural reservoirs and filters of this wonderful spring; and *Moel vamma*, or the mother of the mountains, has more to do than the decapitated head of Winifred, with its vast crystal gurglings! Papers from Messrs. Lower, Rev. Beale Post, Messrs. Prior and Pretty, were in part postponed until the next meeting. Sir William Chatterton, Alderman Moon, and the Honourable Ridley Colborne were received as members.

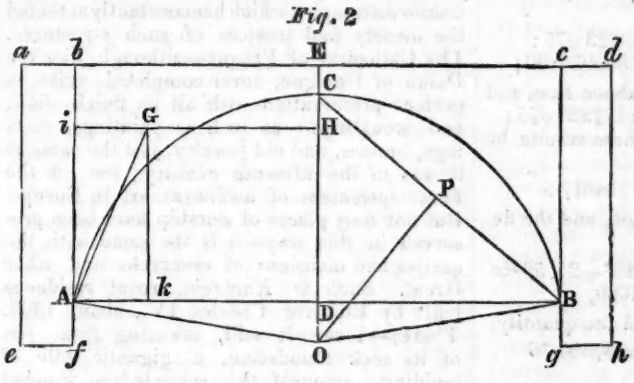
Clandown.—A new church is about to be erected at Clandown, near Bath. The Prince of Wales, as Duke of Cornwall, has subscribed 100*l.* towards the expenses.

ON THE EQUILIBRIUM OF PIERS.

What we have done at page 8 applies to the semi-circular arch when the summits of the piers and the road-way are in the same horizontal plane; but when the arch is some segment less than a semi-circle, the investigation, as well as the construction, is somewhat more difficult, in consequence of the elements which it involves; the general result, however, assumes a form nearly the same as equation (D), and for this reason, the process which it represents will be nearly the same as that just exemplified.

Let ACB (fig. 2), be a segmental arch, of which the span is AB; the versed sine, or

Fig. 2



height, DC, and CE the thickness at the crown, or the depth of the key-stone; *abfe* and *cdhg* being the upright piers as in the preceding case.

Draw the straight line BC, which bisect in the point P, and at P erect the perpendicular PO to meet CD produced in O; then is O the centre from which, with the radius OA or OB, the segmental arch ACB is described. Let G be the place of the centre of gravity of the semi-arch ACE*b*, and through the point G let the horizontal and vertical lines *i*GH and G*k* be drawn, meeting the pier in the point *i*, the axis DE in the point H, and the span or base AB in the point *k*, and draw AG. Then, because G is the centre of gravity of the semi-arch ACE*b*, the whole mass of which it is constituted, may be conceived to occupy that individual point, it will therefore produce the same effect on the pier as is produced by the arch in the actual form of its construction. Now, if G*k* represent the force of the semi-arch in the direction of gravity, then will *k*A represent that part of it which acts against the pier in the direction of the span or base BA; therefore, if *w* denote the weight of the semi-arch ACE*b*, then we have

$$Gk : kA :: w : \frac{w \cdot kA}{Gk}$$

This is the force exerted at the point A to turn the pier about the point *e*, but the leverage on which that force exerts itself is A*f*; consequently, the momentum or mechanical impulse is expressed by $\frac{w \cdot kA \cdot Af}{Gk}$, which must be equal to the momentum of the pier. Now the area of the pier is $bf \cdot ef$, and the leverage is $\frac{1}{2}ef$, so that the momentum is $\frac{1}{2}bf \cdot ef^2$; hence, by comparison and reduction, we get

$$ef = \sqrt{\frac{2w \cdot kA \cdot Af}{bf \cdot Gk}}$$

being precisely the same as equation (A) for the semi-circular arch previously investigated.

Let A denote the area of the semi-segment ACD; then will AD·DE − A, express the area of the semi-arch ACE*b*; and since this is proportional to, and represented by the weight *w*, we have

$$ef = \sqrt{\frac{2(AD \cdot DE - A) \cdot kA \cdot Af}{bf \cdot Gk}} \quad \ldots (E)$$

In this equation the quantities A, *k*A, and G*k* are as yet unknown, but they are all determinable from the data by the rules of mensuration, and a well known property of the centre of gravity; for if we suppose the rectangular plane ADE*b*, to revolve about the side AD, which remains fixed, it will, during the revolution, generate a cylinder whose radius is DE and altitude AD, while the semi-segment ACD generates half a circular spindle, whose radius is DC and half the length AD; and the difference between the cylinder and half the circular spindle, will be equal to the solid generated by the revolution of the semi-arch ACE*b*, and this is equal to a prism whose base is the area of the revolving plane, and altitude equal to the circumference of the circle described by its centre of gravity. Now, by the rules of mensuration, the solidity of the cylinder is expressed by the term 3·1416AD·DE², and that of one-half the circular spindle by 2·0944 (AD³ − 3A·OD); consequently, by subtraction, we get

$$3{\cdot}1416\,AD \cdot DE^2 - 2{\cdot}0944\,(AD^3 - 3A \cdot OD),$$

and if this be divided by 6·2832 times the area of the semi-arch, we shall obtain the value of the ordinate G*k* as follows:—

$$Gk = \frac{1{\cdot}5AD \cdot ED^2 - (AD^3 - 3A \cdot OD)}{3(AD \cdot DE - A)} \quad \ldots\ldots (F)$$

In this equation we have introduced another quantity whose value is not known *à priori*, but which is readily assignable from the data; we mean the central distance OD, that being necessary for determining the solidity of half the circular spindle.

Again, if we conceive the rectangular plane DA*b*E, and the circular portion DAC, to revolve simultaneously about DE the axis of the arch, and DC its height, the one will generate a cylinder whose diameter is AB and altitude DE, and the other a spheric segment having AB for the diameter of its base, and DC for its height or versed sine, and the difference of these will be the solidity of the figure generated by the contemporaneous revolution of the semi-arch CA*b*E.

By the rules of mensuration, the solidity of the cylinder thus generated, is expressed by the term 3·1416AD²·DE, and that of the spheric segment by 0·5236 DC (3AD² + DC²); therefore, by subtraction, we get

$$3{\cdot}1416\,AD^2 \cdot DE - 0{\cdot}5236\,DC\,(3AD^2 + DC^2),$$

which being divided by 6·2832 times the area of the semi-arch, gives

$$HG = \frac{6AD^2 \cdot DE - DC\,(3AD^2 + DC^2)}{12\,(AD \cdot DE - A)}$$

and by subtracting this from the radius DA or H*i*, we obtain

$$Ak = \frac{6AD\,(AD \cdot DE - 2A) + DC(3AD^2 + DC^2)}{12\,(AD \cdot DE - A)} \quad (G)$$

Then, if the values of G*k* and A*k* as represented in the equations (F) and (G), be respectively substituted in equation (E), it will be, $ef =$

$$ef = \left(\frac{3AD^2(2DE + DC) + DC^3 - 12AD \cdot A}{3A \cdot OD + AD(1{\cdot}5DE^2 - AD^2)}\right)^{\frac{1}{2}} \times \left(\frac{Af(AD \cdot DE - A)}{2bf}\right)^{\frac{1}{2}} \quad \ldots\ldots\ldots\ldots (H)$$

This equation for the thickness of the pier, is more complex in its form than that for the semi-circular arch, and it involves two quantities, that require to be found by a separate computation; these are the central distance OD, and A, the area of the semi-segment CAD, the rules for which may be found in books on mensuration.

In consequence of the very complicated form which the resulting equation assumes, it would be difficult so to express it in words as to render it intelligible to the general reader, but, if the steps employed in resolving the following example be carefully attended to, there will be no difficulty in applying a similar process to any other case.

Example 2.—Let AB, the span or base of the arch ACB, be 100 feet, the versed sine or height DC, 41¼ feet, the thickness at the crown or length of the key-stone CE, 6¼ feet, and A*f*, the distance from the foundation to the spring of the arch at A, 10 feet; what must be the thickness of the sustaining pier?

In applying the above equation to the resolution of this question, the first thing to be determined, is OA or OB, the radius of the circle, from which is found the central distance OD, and A, the area of the semi-segment CAD. Now BC, the chord of the semi-arc, is equal to the square root of the sum of the squares of the semi-span, and height of the arch; that is $BC = \sqrt{BD^2 + DC^2}$, and the triangles DBC, BOP, are similar; consequently, by the property of similar triangles,

we have DC : BC :: BP : OB; that is, $41{\cdot}5 : \sqrt{50^2+41{\cdot}5^2} :: \frac{1}{2}\sqrt{50^2+41{\cdot}5^2} : OB = 50{\cdot}87$ feet, and if from this we subtract the height of the arch, we get $50{\cdot}87-41{\cdot}5 = 9{\cdot}37$ feet for the central distance OD; and by the rule for the circular segment, we get A = 1558 square feet, very nearly; hence the numerical values of all the quantities that enter the equation are known, and the remaining part of the process is therefore as follows:—

$$Af(AD{\cdot}DE-A) = 10(50\times48-1558) = 842\times10 = 8420,$$

$$3\,AD^2(2DE+DC) = 3\times50^2(2\times48+41{\cdot}5) = 7500\times137{\cdot}5 = 1031250,$$

and to this latter result let the quantity $DC^3 = 41{\cdot}5^3$ be added, and it becomes

$$1031250\times71473{\cdot}375 = 1112723{\cdot}375;$$

but $12\,AD{\cdot}A = 12\times50\times1558 = 934800$;

let this be subtracted from the above sum, and we get $1112723{\cdot}375-934800 = 177923{\cdot}375$; then, if the first and last of these results be multiplied together, we have

$$177923{\cdot}375\times8420 = 1497114817{\cdot}5$$

for the numerator of the fraction, and the denominator is found as follows:

$$3\,AD{\cdot}DE^2-2\,AD^3 = 3\times50\times48^2-2\times50^3 = 345600-250000 = 95600,$$

to which difference, let be added the quantity,

$$6A{\cdot}OD = 6\times1558\times9{\cdot}37 = 87590{\cdot}76$$

and we get

$$95600\times87590{\cdot}76 = 183190{\cdot}76,$$

and if this be multiplied by 58 feet, the whole height of the pier, we have

$$183190{\cdot}76\times58 = 10625114{\cdot}08$$

for the denominator; hence it is

$$ef = \sqrt{\frac{1497114817{\cdot}5}{10625114{\cdot}08}} = 11{\cdot}87 \text{ feet.}$$

This, therefore, is the process as it is actually required to be performed, in determining the thickness of the piers for the two cases which we have exemplified; they are, however, the very simplest cases of which the problem is susceptible, for when the forms of the pier and the arch are different from those which we have assumed, the equation will become more complicated according to the forms made use of; the chief difficulty, however, consists in finding the position of the centre of gravity, or the co-ordinates by which it is determined; for when these are supposed to be known *á priori*, the operation as well as the equation by which it is indicated, is comparatively simple.

The method that we have employed in determining the position of the centre of gravity, is well deserving of the reader's attention; and if it be carefully pondered and well understood, it will be of the utmost use in leading the practical man to the determination of that important point in numerous other cases for which no general rule is given. T.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

British and German Antiquarianism.—There exists, we believe, no "*historical-antiquarian map*" of this realm—one, to wit, on which all the sites of important buildings, roads, &c. (and, of course, those of all important battles, pageants, &c.), are correctly laid down.* Such a map would exhibit a graphic picture of the history of the country—typified in structural or other art remnants, as well as derived from *tradition* and the written records of time. If we, however, construct such a chart within our mind's eye—and fill up the expanse of these lands with those (in the aggregate) *numberless* minsters and cathedrals, and convents and abbeys, and monasteries, castles, mansions, palaces and colleges, as they existed shortly before the (first) Reformation; when, forsooth, almost every village possessed its substantial "stone and oak" house of worship—many of them patterns of beauty and solidity and sterlingness; we say, then, that it must have been a splendid land: not only "merry old England," but splendid old England—indeed. Italy may excel this country in the singleness of her majestic structures, some of them of a time *ante*-historical in regard to England—but not in the dense crowd of man's *greatest* works, scattered all over the land. France and Germany bear the same proportion—save the deficiency of Italian antique buildings. Over Italy and France, moreover, as upon many parts of Germany, the structural and art-demolishing process of first Reformation—previous civil wars without end, have not passed to that extent, as they have bereaved England of her finest monuments.—For the sake, however, of arriving at our subsequent corollaries—we have to single out *Bohemia* and *Austria* (the province), and allude to the perfect state of preservation of many of their ancient structures, not only on account of the freedom from the ravages of Reformation, but of the *Conservative* spirit which has constantly actuated the owners and trustees of such structures. The Cathedral of Prague—although, like the Dome of Cologne, never completed, exists in perfect preservation with all its finials, foils, and mouldings—as well as paintings, carvings, brasses, and old jewelry, just the same as it was in the fifteenth century; one of the finest specimens of mediæval art in Europe. But not only places of worship have been preserved in this way—it is the same with the castles and mansions of monarchs and other Great. Such is *Karlstein*, royal residence built by Emperor Charles IV., about 1360. There,—I see it still, towering from out of its rock foundation, a gigantic pile of building, amongst the surrounding wooded and wild mountain ranges of Bohemia. Here, the carved ceilings and stalls of the chapels, the armories and stained-glass windows—nay, even the first specimens of combined fresco and oil paintings (previously introduced from the East), have remained intact—in fact, the greater portion of the immense castle is, if not inhabited, at least habitable. The same spirit of preservation has animated the trustees of smaller religious buildings—nay, even private individuals. An example of the former is the chancel of the Templars' Church, near *Schöngrabern*, in Lower Austria (erected in the twelfth century), the outside of which is covered with Basso-relievos of the rites—nay, heathen *mysteries* of this half-secret association. Still, there they are, as complete and unscathed as the day when the last stroke of chisel passed over them. The landed proprietors of Austria have followed in the same wake—and *Greifenstein*, the castle where King Richard I. (Cœur de Lion) was kept a prisoner about 1190, has been repaired and renovated many years ago, and made accessible, nay, comfortable, to the visitor. The same with Lichtenstein, near Vienna, the cradle of the princely house of that name. It is not only the *material* preservation and the material *sight* of such structures, which is to be taken into consideration—but the many lessons (of art and otherwise) which we may derive therefrom. These, added to *our* present worth—provided this age possesses any such, will then necessarily increase the radii of our civilization.

Emigration of Foreign Artisans.—A number of masons, bricklayers, and carpenters, about one hundred, have left the duchy of Modena, to settle in French Africa (Algiers), as the Government have put forth, that the wages of one of the above artisans at Algiers, are five francs a day, equivalent to seven or eight at Paris or other crowded cities.—The number of German artisans also, who emigrated last year to South Australia, was considerable, as according to the official "Table of Revenue, Commerce, &c., of Great Britain, for 1844," largely circulated by German emigration agents, the wages of masons and carpenters at Sydney, are from eight to twelve shillings a day.—*Allg. Zeitung.*

Railroads in Tyrol.—This alpine and picturesque country is also engaged in railway plans, but which here are fraught with great difficulties. Some years past the Rosenheim-Inspruck line was spoken of, but as even the Salzburg-Munich was very unpromising, the plan did not much proceed. Since the late project of some Venetian and English capitalists, to construct a line through the southern valleys to the Bodensee, the Verona-Bregentz lines have been anew considered. But the difficulties of even this single line are very great—viz. the regulation of the course of the Adige, the passing of two water-sheds, and the Arlberg—besides the incalculable sums, which the destruction of the line by torrents or snow-drifts would occasion. Easier would be a line from Botzen to Inspruck. The passing of the Splügen is also mentioned, as the fittest for the Indian mail, if the plan were otherwise practicable. As the association-buildings in Lombardy have proceeded not quite satisfactorily—the opinion in Tyrol is, that these lines should be undertaken, as in Belgium, by the state.

Telegraphs at Algiers.—They were established in French Africa as far back as 1837—but then only from Algiers to the camp of *Bouffaric*. In the year 1842, however, a director was sent from Paris, to study and report on the lines to be executed. In the year following, the line from Algiers to Miliana was completed, consisting of eleven stations. It was further extended to Blida, in both cases either in houses already existing, or little turrets built for that purpose. Each of these consists of three rooms on the ground-floor, and one above, the terrace surrounding it being furnished with a battlement and loop-holes. The further lines proposed are from Algiers to Orleansville and Medea, and even Muscara and Constantine are spoken of.

Bridges in France.—The Minister of Public Works has laid before the Council of State the draught of a bill modifying the scale of charges on the Ponts des Art, Austerlitz, and de la Cité—which belong to a private company. During the year 1845, the number of royal ordonnances, authorizing the erection of suspension and other bridges in France, has been twenty-five, the expenses to be borne either by the corporations (*communes*), or by budget.—*Le Siècle.*

Interior Ornamenting of Public Offices at Paris.—The spacious saloons of the comptroller general's office (*Cour des Comptes*) have been ornamented in a splendid style with pictures, busts, &c.

Public Parks and Bathing Places, Vienna.—The necessity for places of exercise and recreation of the people, was started at Vienna, seventy years ago—by Emperor Joseph II.; and so eager was H. M. in this undertaking, that large trees were dug out in depth of winter, and transplanted in the *Augarten*. The inscription, which this philanthropic sovereign placed on the entrance to his public park, deserves to be noticed. "*To all men devoted recreation-place—by their esteemer,*" Josephus II.*

Railways the surest guarantee of "Peace amongst men."—It is obvious, that all the expense, nations are now incurring for building such gigantic lines of rapid communication, to which is to be added, the whole scope and activity of the country, which is led into these channels and veins—would be at once annihilated, if a war was to break out in any part of Europe. To destroy a line of the *old road*, a vast number of engineers, sappers, and miners would be required—while the sleepers and rails of the *new roads* could be faster taken off, than they ever have been put on. In fact, half a dozen men with a couple of crowbars might do more harm to a line of a hundred miles in a few days, than hundreds of workmen could replace in a year.—*Gräntzbothen.* J. L——Y.

IRON AND THE IRON TRADE.

The quarterly meeting of the ironmasters was lately held at Birmingham. It was not so numerously attended as heretofore. This may be attributed in some degree to a dispute now waging between the great masters on the one part and a number of small factors chiefly residing in Walsall and Wolverhampton on the other, with respect to the exact days on which the quarterly meetings are due. The prices, however, remain firm, with a decided tendency to a rise in all descriptions of iron. 10*l.* per ton for bar iron is firmly maintained; indeed; there was little inclination to sell at this price, and but few sales were effected. There was an advance of 10*s.* per ton on Shropshire pig-iron, which now stands at 5*l.* 10*s.* There was no advance on Staffordshire pig-iron, the price of which may be quoted at from 5*l.* to 5*l.* 5*s.* per ton. The Glasgow pig-iron trade has experienced a rise of late; nearly 4,000 tons were sold last week at 80*s.* to 82*s.* 6*d.*, after which 1,000 tons realised 83*s.* Several of the makers are open for contracts or sale for immediate delivery at 85*s.*, but it is

* We are aware that the new ordnance charts exhibit the lines of the Roman roads—but this, of course, is but a portion of what an antiquarian map would realise.

* *Allen Menschen gewidmeter Belustigungs-Ort—von ihrem Schätzer.*

believed that 83s. 6d., prompt cash, would buy from makers 8,000 to 10,000 tons.

To shew how cheaply iron is obtained, and how the mechanical skill and labour expended upon it totally overshadow the original price, the last number of the *British Quarterly Review* gives the following curious and instructive calculation :—

Bar-iron worth 1*l.* sterling, is worth, when worked into—

Horse shoes	£2	10
Knives (table)	36	0
Needles	71	0
Pen-knife blades	657	0
Polished buttons and buckles	897	0
Balance springs of watches	50,000	0

Cast-iron worth 1*l.* sterling, is worth, when converted into—

Ordinary machinery	£4	0
Larger ornamental work	45	0
Buckles and Berlin work	600	0
Neck chains, &c.	1,386	0
Shirt-buttons	5,896	0

Thirty-one pounds of Shropshire iron has been made into wire upwards of 111 miles in length ; and so fine was the fabric, that a part of it was humourously converted, in lieu of the usual horsehair, into a barrister's wig ! The process followed to effect this extraordinary tenuity, consists of heating the iron and passing it through rollers of eight inches diameter, going at the rate of 400 revolutions per minute, down to No. 4 on the wire gauge. It is afterwards drawn cold, at Birmingham or elsewhere, down to the extent of 38 on the same gauge, and so completed to the surprising length of 111 miles.

Of the quantity of iron manufactured in Great Britain, South Wales produces 279½ thousand tons; Staffordshire, 219½; Shropshire, 81½; Scotland, 37½; Yorkshire, 33; Derbyshire, 22½; and North Wales, 25.

WESTMINSTER COURT OF SEWERS.

At a court held on Friday, the 16th inst.; Joseph Fuller, Esq., in the chair—

Mr. Le Breton proceeded to submit several motions defining the duties of the surveyor; and subsequently his motion, which had been adjourned from the last court, was put from the chair: "That the salary of the chief surveyor, to be appointed in pursuance of the order of court of the 14th November, 1845, and confirmed, be 600*l.* per annum; and that measures be taken to invite candidates to apply for the office."

Mr. Leslie urged the impolicy of the delay which Mr. Le Breton was occasioning, and the risks the commissioners would run in advertising an office of 600*l.* per annum, while from the dismissal of the officers there was absolutely nothing but confusion. No doubt 150 or 200 persons might be collected, as candidates, but their abilities could alone be evidenced by a trial, and that could only be obtained after the election of one, and which, after all, would depend more upon the success of the party in the canvass, than in the real ability of the individual for the office. The officer the court required was a man of ability and activity; one who would fearlessly discharge his duty. He saw such an officer in Mr. Phillips, the clerk of the works, whose form of sewers had been adopted by the court; whose reports as to the abominable condition of the sewers in his district had awakened the court as it were, from a trance. These were two most important points, the form of sewers, and the actual condition of the existing sewers. He thought the wise course for the court to adopt was, to let Mr. Phillips have a trial to carry out his own form of sewers, and the mode in which he had so successfully cleansed a sewer in Berners-street with such a vast saving of expense, and avoidance of nuisance. He would, therefore, ask the court to support the amendment he was about to conclude with, and if successful in that, he should give notice of motion for the next court to appoint Mr. Phillips as chief surveyor for a limited period, upon trial, at a salary of 250*l.* per annum.

The honourable commissioner's amendment was, "That it is not expedient to invite candidates for the office of surveyor until a trial be made of Mr. Phillips, whose form of sewers had been adopted by the court."

The motion was seconded by Mr. Cumberlege, who gave way to Capt. Bague. The gallant officer declared himself in favour of the amendment; there was so much propriety in it, that he, although seldom voting with Mr. Leslie, would do so on this occasion. He saw in Mr. Phillips a young man of talent and industry, and the court wanted such an officer ; not one who, if Mr. Le Breton's motion was carried, would for the 600*l.* a year come down in his kid gloves and perfumed handkerchief, but who would neglect the more unpleasant duty of going into the sewers, or soiling his fingers; he should therefore support the amendment.

Mr. Allason was decidedly opposed to Mr. Phillips, who was very well as a clerk of the works, and might in that capacity be very useful to the court. Whatever Mr. Phillips's talent might ripen into, at present he was not fitted for them ; their officer should have talent of first-rate description ; he should oppose the amendment, and thought the court should not lose the opportunity of advertising for candidates.

Mr. White, although he did not like Mr. Phillips's forms of sewers, thought he had shewn great ability, and as the amendment was only to give Mr. Phillips a trial, he would support the amendment.

Mr. Cumberlege having seconded the amendment, wished to say a few words as to Mr. Phillips. He thought him a young man of very rising talent, and it was the duty of the court when such ability was exhibited, to promote the individual as opportunity arose, as the effect of the example would be very beneficial to the establishment. He had displayed great activity, and evinced great talent in the discharge of his duties ; his drawings, also, had been remarkably well done.

Mr. Cantwell was decidedly opposed to Mr. Phillips's appointment: he pledged himself that no man of honour and integrity would accept the 600*l.* per annum without doing the more disagreeable parts of his duty in examining the dirty state of the sewers.

Mr. Gutch also was opposed to the appointment of Mr. Phillips. Although he was ready to admit, he had shewn considerable talent, he still thought him unfit for the many duties the court would expect from a person placed at the head of the establishment.

The amendment was carried by 10 to 8.

Mr. Leslie then gave notice, that at the next meeting of the court, he should move that "In consequence of the order of court this day, January 16, 1846, that Mr. Phillips's appointment be made as chief surveyor upon trial for six months, at a salary of 250*l.* per annum."

Mr. Le Breton gave notice that he should move as an amendment to Mr. Leslie's notice of motion "That at the next court, measures be taken to advertise for candidates for the office of chief surveyor, at a salary to be then fixed."

An extraordinary sensation was produced by the reading of a report from Bryant Budd, labourer in trust.

Mr. Leslie rose to move, that Mr. Budd's report be printed and circulated among the commissioners, there being so small a number present.

Captain Bague implored Mr. Leslie not to persevere in his motion for printing Mr. Budd's report, as if such a document were to be sent forth, the court must indeed hide its diminished head.

Mr. Willoughby thought Mr. Budd's a very candid statement.

No commissioner would second the motion for printing the report, and the matter dropped.

The report in question is one of the most extraordinary documents that ever came before us, and shews that the establishment of the Westminster Sewers' Commission, with nearly 15,000*l.* at the bankers, the control of arrangements of vital importance to the community, and possessed of most arbitrary powers, is perfectly disorganized, and in such a state of confusion and inefficiency as should not be allowed to continue for twenty-four hours. We are prevented from printing it *in extenso*, partly by the feeling expressed by Captain Bague, and partly by want of space ; but we cannot refrain from quoting some portions of it and urging the commissioners, for many of whom we have the greatest respect and much personal consideration, to take immediate steps to produce a more seemly state of things.

The writer, who, it should be said, has been a servant of the commission twenty-four years, "and during that long service has not been once reprimanded by the court," commences his report by saying, "I am sorry from my impaired health and nervous state I could not do it better, but I presume the truth is all you require."

After the determination of the commissioners to do all work under 50*l.* in cost themselves, instructions were wanted, but could not be had; no preparations were made, no orders could be obtained :—

"All this time the complaints kept coming in, and were often repeated, until the office had no appearance of business, for no one seemed to know when or how the business was to be done. We had no contractor for materials, no place prepared to put them in; no implements for our use, no person appointed to conduct this great undertaking. People whispering, and wanting to know what we were doing, and what was the cause; some laughing at us,—we making all sorts of excuse. This strange state of things continued about ten days, and nearly the whole of your business on the eastern and western divisions of sewers was stopped." "Twenty or thirty half-starved men" were then engaged, "some with an old garden hoe, or an old broken pickaxe; indeed some of the things would have done for the British Museum as curiosities rather than tools."

No good bricks could be had, and "all things continued to go on as bad as possible. I did all that I was ordered as faithful as my limited authority would admit; but it appeared as if I was born to trouble, for Mr. Dowley was taken very ill, which I was not surprised at, from his state of mind ; and no one offering to take his place, I was obliged to go on as well as I could."

The office became a laughing-stock, and the poor labourer-in-trust "had not a night's sleep for a week." "You must consider the state of our office: Mr. Dowley ill for the last month; Mr. Doull's days are numbered with you, therefore he is not willing to enter into more difficulties than he can help ; no assistant surveyor ; nearly double work put upon us ; every thing strange to us, every thing uncomfortable ; we cannot please you, we cannot please ourselves, or any body else."

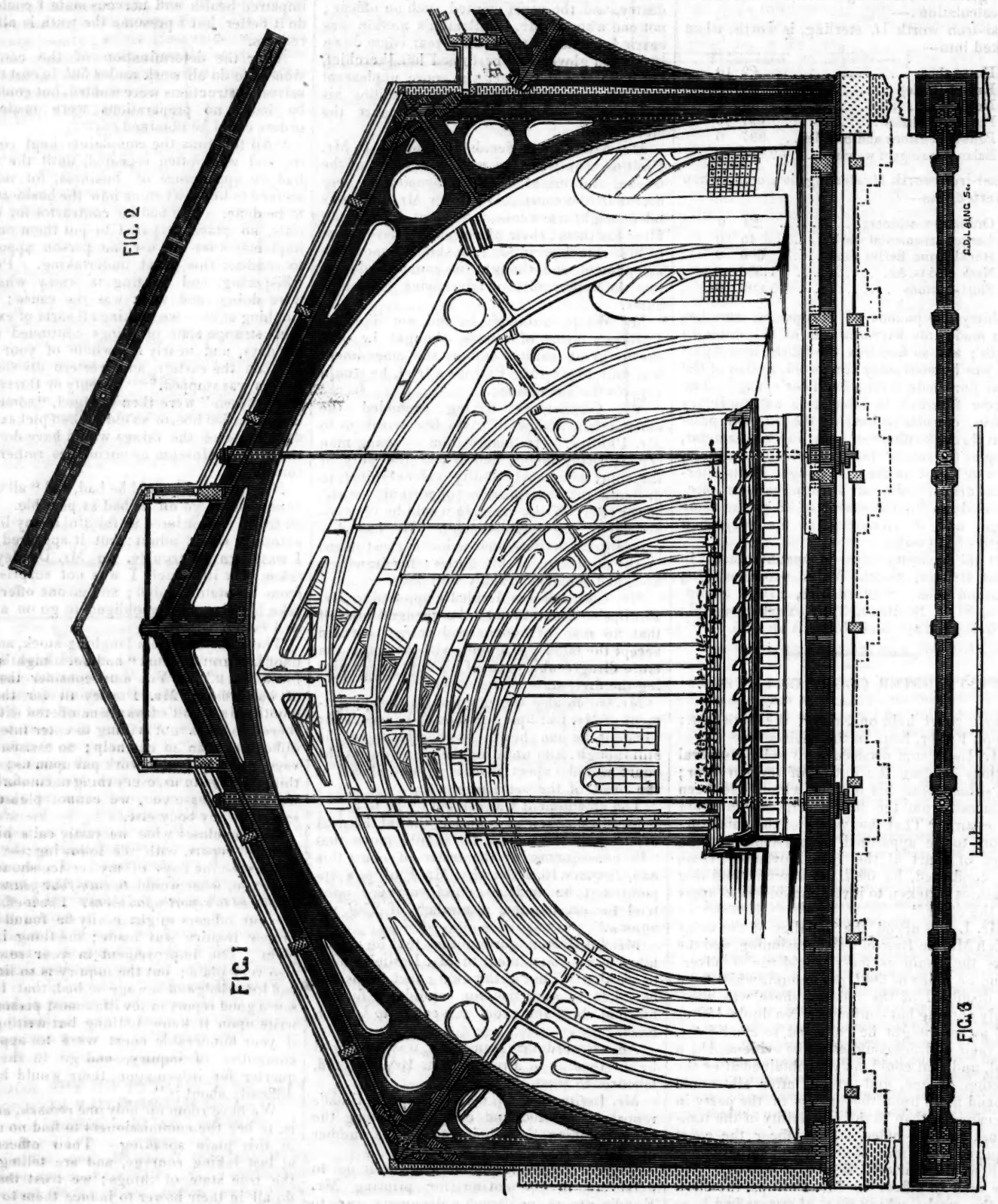
And he closes what he justly calls his unpleasant report, with the following :—"If the last sixty-nine days of my service should surprise you, what would *twenty-four years, were I allowed to report upon them?* The inefficiency of your officers might easily be found out if proper inquiry was made; the thing is very plain. The improvement in your sewage is also very plain ; but the inquiry is so limited, and knowledge of sewage so bad, that I never saw a good report in my life : most persons that write upon it know nothing but writing: but if your honourable court were to appoint a committee of inquiry, and go to the right quarter for information, there would be little difficulty about it."

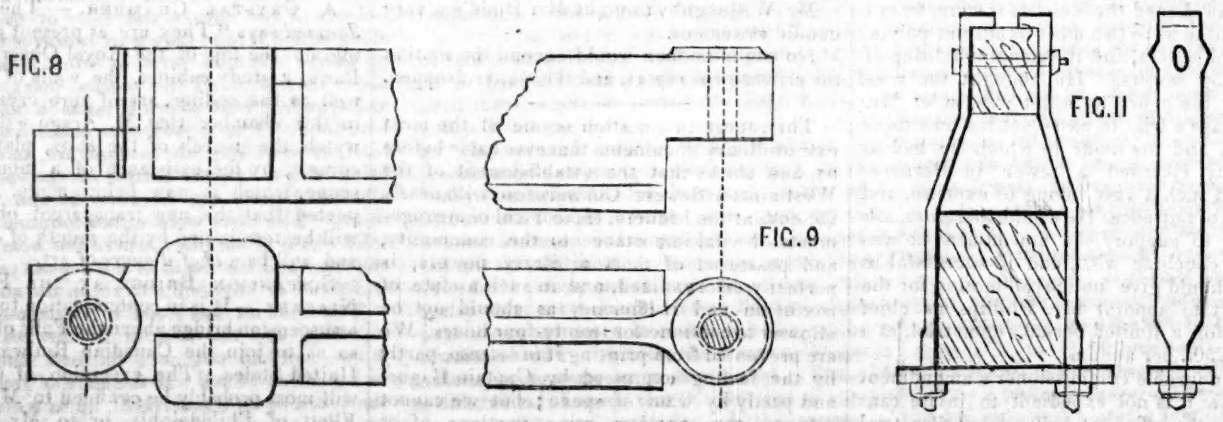
We have room for only one remark, and that is, to beg the commissioners to find no offence in this plain speaking. Their officers are at last taking courage, and are telling them the true state of things; we trust they will do all in their power to induce them to persevere in this course, rather than to check it.

A Crystal Chamber. — The *Mining Journal* says "They are at present constructing, on the top of the Royal Observatory in Paris, a study cabinet, the walls of which, as well as the ceiling, are of pure crystal. It is in this chamber that M. Arago will work to watch the march of the stars, planets, and comets, by the assistance of a monster telescope, which is now being made. It is expected that this new transparent observatory will be terminated by the month of July next, and will be a *chef d'ouvre* of art.

Suspension Bridge at the Falls of Niagara.—It is in contemplation to construct a suspension bridge above the Falls of Niagara, so as to join the Canadian Railway and the United States. The execution of the works will most probably be confided to Mr. Charles Ellett of Philadelphia, or to Mr. John A. Rebling of Pittsberg. The estimated cost is 43,200*l.*

NEW SORTING ROOM IN THE POST OFFICE.





DETAILS OF CONSTRUCTION.*

FIG. 4

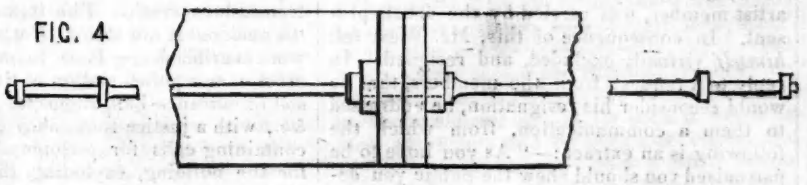


FIG. 10

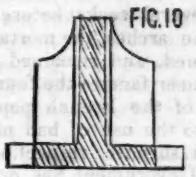


FIG. 5

FIG. 6

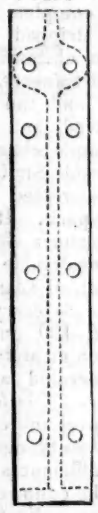


FIG. 7

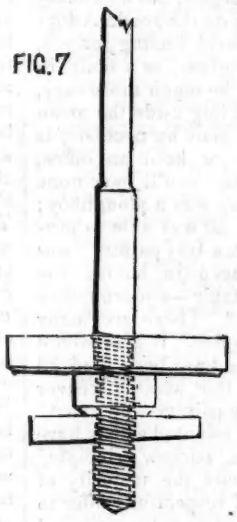
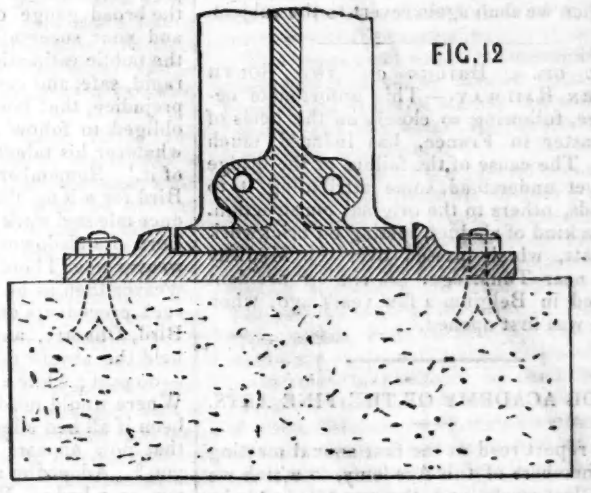


FIG. 12



AWARD OF ART-UNION PREMIUMS.

The Committee of the Art-Union of London decided on Tuesday last, after a long and careful investigation of the merits of the various cartoons submitted in competition for the 500*l.* premium, that the author of No. 10, "Queen Philippa interceding for the lives of the Burgesses of Calais," was best entitled to receive the commission, provided he was found competent to execute the painting. On opening the sealed letter bearing the same mark as the cartoon, the artist was seen to be Mr. H. C. Selous, best known by his illustrations of "The Pilgrim's Progress," and a cartoon to which the Commissioners of Fine Arts awarded a prize in their first competition.

The meeting at which the decision was made, was very numerously attended, and the great merits of several other cartoons were canvassed at considerable length. The decision was ultimately arrived at *nem. con.*, and we have no doubt will be coincided in by the great majority of persons capable of judging. The duty of the committee was an onerous one; we happen to *know* that it has been performed by them with the greatest care, solicitude, and impartiality. Artists generally are indebted to them for the course they have pursued, more especially for throwing the works open to the public *before* making the selection. We have long urged the importance of having such an exhibition in architectural competitions, and trust the present example may serve to assist in obtaining that result.

We hope every artist who has submitted a cartoon will now forward his name to the committee, that they and the public may know with certainty who responded to the liberal and well-judged endeavour, made by the Art-Union of London to encourage the production of works of a high class. We annex six or seven of the artists' names, whose works are unmistakeable, or have been *publicly* recognized.

No. 10. Queen Philippa. *Selous.*

No. 25. Seizure of Mortimer. *Noel Paton;* to whom the Art-Union awarded an honorary premium some time ago.

No. 12. Howard visiting a Prison. *Armitage;* known by his cartoon rewarded by the Fine Arts' Commissioners.

No. 23. The Welcome of the Boy King, and

No. 1. Queen Eleanor obliging Fair Rosamond to swallow Poison. *Edward Corbould.*

No. 13. Non Angli, sed Angeli. *G. Scharf.*

No. 21. The Death of Harold. *G. E. Hicks,* who obtained the Art-Union premium for outlines last year.

No. 16. Oliver Cromwell about to slay Thurlow's Clerk. *Stothard.*

We will give in an ensuing number the names of any other competitors who may authorize us to do so.

We have reason to believe, the committee will award honorary premiums next week, to two or three of the other cartoons.

Sir,—You admitted into your last number a letter from Mr. Frank Howard, on the subject of the cartoons now exhibiting at the new Water-colour gallery in Pall Mall. The same gentleman has favoured the *Athenæum* with a similar epistle, under the signature of "An Historical Painter," as will be seen on reference to the current number. I have been a subscriber to the London Art-Union from its commencement; have watched with gratification, not merely its extraordinary progress, but the more extraordinary effect it has had in leading the public to find interest in matters connected with the fine arts, and furnishing ample opportunity for the development of artistical ability through the kingdom, and could speak from personal knowledge (if that were my object), of the conscientious, untiring, and able manner, in which the committee of this society has worked to enlarge its usefulness. But I do not take up my pen to address you on this head—it is, I believe, almost universally recognized, at all events I can conscientiously affirm that it ought to be.

My object is to draw attention to a hint infamously thrown out by Mr. Howard in the second letter alluded to, to the effect that the opinion in favour of "Philippa and the Burgesses of Calais," almost unanimously expressed by the London press, had been induced by "the nods and becks and wreathed smiles" of the committee. Moreover, as I am credibly informed, he has in other quarters asserted this still more broadly. Now, Sir, on the part of a portion of the London press, I take the liberty of telling Mr. Howard that this calumnious assertion shews as much his gross ignorance as his bad feeling. The committee could have no reason to attempt to produce this unanimity. They opened the exhibition before even the consideration of the cartoons took place, purposely to obtain the opinions of others; and if they *had* been so weak as to attempt to guide the press, would have failed as a matter of course. The right-minded and accomplished gentlemen in whose opinions on matters of art the conductors of the *Times, Herald, Chronicle, Post,* &c., &c., confide, are not in the habit of attending to "nods and becks," and will probably take some convenient opportunity so to inform Mr. Howard.

The propriety and good sense of this insinuation are only equalled by the knowledge of art exhibited by his selection for especial praise, in contrast to "Philippa," of the cartoon called, "Ill May Day." To say, as he has the hardihood to do, that this drawing answers much more fully than either "Philippa" or "The Boy King" to the requisition of the committee for "a work of mind," is positively an insult to common sense, and will not serve to increase the reputation of Mr. Frank Howard.

I have the honour to be, with best wishes for the continued success of "The Builder."

An Old Writer on Fine Art.

FALL OF A VIADUCT ON THE ROUEN AND HAVRE RAILWAY.

On Saturday, the 10th instant, about six o'clock A.M., the great viaduct of Barentin on the Rouen and Havre Railway fell with a tremendous crash. The viaduct consisted of twenty-seven arches, each of 50 feet span English; the extreme height of the middle was 100 feet. The actual height of the piers differed according to the extremely differing heights of the bottom and sides of the valley along which it ran; they were however brought up to one common level in solid stone, and above that level all the works, piers, arches, and spandrils were of brick made in the neighbourhood. The arches were semicircular and built, as most English bridges are, in distinct brick rings. In the bottom of the valley the alluvial deposit was between 20 and 30 feet thick. The piers were either founded on the solid chalk or on piles, where the nearness of the river and the depth of the deposit rendered it difficult or impossible to reach the rock.

The viaduct has been a twelvemonth in building, and the four or five arches at the Rouen end had not been finished more than two months. Such was the state of things on the morning of the accident, up to which time no symptoms of yielding, or settlement of any kind had occurred, except a small crack in the foundations of one of the stone piers, which

* See p. 37 in the present number.

did not extend to the brickwork. The arch that first gave way was where the ballast was being put on, which leads to the surmise that they had not loaded the arches properly, and since this portion of the work (the last built) had been done in wet weather, and open to the rain of several weeks before the concrete was put in the arches, the mortar was necessarily weakened, and remained unset. The resident engineer fancies the foundations gave way. Some of the French papers attribute the accident to the use of bad materials. At present all is surmise respecting the cause. The French Government has ordered a rigid inquiry into the affair, and by competent persons. It is only fair, therefore, to wait the report of the commissioners, and the reply which the chief engineer will no doubt make to it, when we shall again revert to the subject.

FALL OF A BRIDGE ON THE SOUTH EASTERN RAILWAY.—This unfortunate occurrence, following so closely on the heels of the disaster in France, has induced much alarm. The cause of the failure of the bridge is not yet understood, some attributing it to the floods, others to the original construction. It was a kind of viaduct, resting on brickwork abutments, which passed over the Medway valley, near Tunbridge. A similar accident happened in Belgium a few years ago, when the line was first opened.

BRISTOL ACADEMY OF THE FINE ARTS.

THE report read at the first annual meeting of the members of this Academy, to which we alluded last week, and the remarks made by various speakers on the occasion, referred to the erection of a fitting building for the purposes of the Academy. "The committee believe that it would be attended with very beneficial results, and their only hesitation is founded on the limited extent of the funds of the Academy, and on their anxiety that nothing done at this time should prove an embarrassment to the period— not, they trust, very far distant,—when a larger outlay being justified by the increased means of the society, a building in every way worthy of its objects might be erected. In the meantime, however, they are sensible that annual expenses will be incurred, which the possession of a suitable building would prevent; and they entertain a strong belief that the announcement of a determination to proceed in its erection in the approaching spring would be highly agreeable to the donors and subscribers."

A room for the study of the life-model is open three evenings in the week. "The study of the old masters has been pursued at the Victoria rooms, where Mr. Miles has kindly deposited pictures for that purpose, during five days in the week, and it is proposed that this shall be continued during the winter months." "On every Thursday this room has been set apart for the establishment of a ladies' class, for studying from the life, under the direction of an artist" "It is hoped by the committee that classes for perspective may soon be formed, calculated as they are to be eminently serviceable to a great number of young persons, who sketch and draw as amateurs, and seldom go through the essential steps leading to accuracy of delineation. As an object of the highest importance, the committee have especially directed their attention to the establishment of prizes, to be competed for during the present year. To this they have appropriated 55*l.* and they are glad to state that other funds have been placed at their disposal, for this object, to the amount of 65*l.*; making a sum of 120*l.* to be contended for at the next exhibition."

The treasurer's cash account shewed the income to have been as follows:—Receipts of the exhibition of paintings, including sale of catalogues, 205*l.* 9s.; donations, 1,191*l.*; subscriptions, 97*l.* 5s.; and dividend on stock, 60*l.* 16s. 6d.: total, 1,554*l.* 10s. 6d. The expenditure, 321*l.* 0s. 9d.; leaving in the banker's hands a balance of 1,233*l.* 9s. 9d. So far the report.

The local papers contain statements as to a difference of opinion that has arisen amongst the members, and which involves rather an important principle. In November last Mr. West, the keeper of the observatory at Clifton, an artist, and a man of considerable natural ability, proposed two gentlemen for election. Their talents as artists were allowed; but because one of them held a place of small emolument under government he was opposed, and a "determination" to the effect that any one in trade, place, or situation is ineligible as an artist member, was carried by the artists present. In consequence of this, Mr. West felt *himself* virtually excluded, and resigned. In reply to a request from the members, that he would reconsider his resignation, he addressed to them a communication, from which the following is an extract:—"As you hope to be patronised you should shew the public you deserve it by rejecting at once and for ever the narrow gauge of exclusiveness, which you are now on; it cramps all energies, has an uneasy progress, and is a long time on the road. Adopt the broad gauge of a liberal feeling for art, and your success and progress, as a body, in the public estimation, will be much more easy, rapid, safe, and certain. Fling aside the mean prejudice, that because a man by necessity is obliged to follow a trade or hold an office, whatever his talent may be, 'you'll have none of it.' Remember Chantry was a ploughboy; Bird for a long time after he was able to produce talented work, was a tea-tray painter; was Lord Landsdowne disgraced in having the weaver poet Thom at his table—a journeyman weaver then as he is now? There are many such precedents and examples. Where would Bird, Chantry, and Thom have been had all held the absurd doctrine, that while a weaver —no poet; while a tea-tray painter—no artist? Where would most of our talented artists have been if all had adopted the 'narrow principle' that now appears to actuate the majority of you? Adopt the advice I respectfully offer to you as a body. By your own patronage and help to art, you will appear before the Bristol public as a lesson or an example—you will take an elevated position. Keep your exclusive feeling, and the city will look down upon you perhaps with contempt. Endeavour to assist talented individuals when or where they may be discovered; honour yourselves by making them and claiming them as one of your own; rescue ability or genius when depressed by poverty; fear no shame to grasp in fellowship the hand of talent, however fortune may have disguised it."

NOTES IN THE PROVINCES.

ST. MARGARET'S church, Ipswich, is now undergoing considerable improvement. The whole of the pews will be removed, and open benches substituted; the lower part of the east window, which has been blocked up for more than a century, is to be re-opened and furnished with new tracery; and the whole church is to undergo a purification from whitewash, which the zeal of former churchwardens had given it. The western gallery will most probably be removed, as it not only disfigures the church, but impairs its stability. The alterations are being made mainly through the liberality of Mr. W. C. Fonnereau, under the superintendence of Mr. Ringham.——Water-works upon an extensive scale are about to be constructed at Great Yarmouth. Mr. Thomas Wicksteed is the engineer.——The Dundee water-works are being prosecuted with energy. The large reservoir and clean-water basin at Craigton Muir, on the Panmure estate, are considerably advanced; and, by the liberality of Lord Panmure, every facility will be given in execution of the work. The space to be covered by the reservoir will extend to about ninety or one hundred acres.——The London and Birmingham Railway Company have presented 150*l.* towards the repairs of the church of St. John, Coventry. It was presented in answer to an application for voluntary assistance. This is the only church in Coventry without a steeple.——The new barracks at Preston being finished, it is expected that the Lancashire Militia will shortly take possession of them.——It is confidently expected that the north wing of the University College Hospital will be commenced during the approaching spring. It is calculated to cost 4,000*l.* the whole of which with the exception of about 600*l.* is already subscribed for.——At Wickham-market, on new year's day, was laid the first stone of a new subscription building, to be appropriated to various public purposes. Much form and ceremony was used on the occasion.——A very large mill which was in the course of erection at Scarrs Foot, near Kendal, was almost entirely destroyed last week by a severe gale of wind and rain.——A fortnight ago, the upper story of a brick-built stable, in the occupation of Mr. Wood, Doncaster, fell with a tremendous crash. The immediate cause of the accident is not stated. Fortunately, no lives were sacrificed.——It is in contemplation to erect a new police station at Swindon, to consist of entrance-hall, rooms for superintendent &c., with a justice room above, and two wings containing cells for prisoners. The estimate for the building, excluding the site, is 500*l.* The magistrates at present administer justice at a public-house.——The ancient church of Colemore, near Alton, Hants, has lately undergone complete restoration. The roof has been stripped and repaired; the timbers freed from whitewash, stained, and varnished; an ancient transept, long desecrated, has been restored; and the whole of the church has been repaved, and provided with low seats of a very simple character.——A testimonial to the venerable Sir Charles Morgan, Bart., will shortly be erected on one of the heights of Tredegar-park. It is to be a column, which will command a view of the British Channel, and a considerable portion of South Wales. Sir B. Hall, of Llannower, is chairman of the committee to carry out the project, and has subscribed 100 guineas towards it.——The new church at Malvern Link, Worcestershire, was consecrated last week by the Bishop of Worcester. The font, which is spoken of as being "novel and elegant," was a donation of the Countess Somers. The Earl Somers gave not only sufficient land for the site, but also 500*l.* towards the endowment.——Considerable improvements at West Ham are in contemplation, among which may be mentioned the erection of a public hall, and the establishment of gas works sufficiently extensive to insure the whole district being well lighted.——It is proposed attempting to raise, by the proceeds of a bazaar, the existing deficiency of 1,000*l.* in the sum required to enlarge and improve St. Nicholas's Church, Yarmouth.——A company has been formed within the last forinight, whose object is to convert the Warwick and Birmingham Canal into a railroad. Sir John Macneil is the engineer.——Among the projects of the past week is one which contemplates the construction of very capacious wet docks, with an extensive range of wharfage, at Plymouth. A company is forming with this object in view. Mr. J. K. Brunel is the engineer.

CHRONOLOGY OF EGYPTIAN MONUMENTS.

EVERY day increases our knowledge of Egypt, and our means of further increasing that knowledge. The "Literary Gazette" of last week (recently enlarged, cheapened, and improved) reports a very important communication, made by Mr. Birch to the Royal Society of Literature, on the Egyptian obelisk in the At-Meidan at Constantinople, which throws a new and striking light upon the annals and chronology of Egypt, in connection with Bible history. The hieroglyphics record the fact, that Thothmosis III., the erector of the memorial, who reigned 1736 years B.C., had pushed his conquests as far as Naharaim, or Mesopotamia. The monolith shrine, commonly called the sanctuary of Karnac (which is now in the *magasin* of the Louvre), is a monument of the same reign; and Mr. Birch announced that he had examined the copy of the long hieroglyphic inscription which covers it, published by the society in 1823, and found it refer to the same transaction. He also announced the important fact, that he had found there the names of the two chief cities of ancient Mesopotamia, Babylon and Nineveh. The latter had before been read by Champollion on another monument; the former is Mr. Birch's own discovery. Mr. Osburn, than whom there is no Egyptian scholar more competent to give an authoritative opinion, took the opportunity of congratulating the society upon this first step towards any thing like precise information on the subject of the foreign names inscribed on the monuments of ancient Egypt. He also explained that another foreign name, occurring in the inscription on the sanctuary, written in hieroglyphics by the consonants *r*, *d*, and *n*, he had himself ascertained to be that of the founders of Aradus, an

ancient city of Phœnicia, situated on the Mediterranean to the north of Tyre. The name often occurs in the hieroglyphic legends of the conquests of the successors of Thothmosis, where the people are said to consist of two divisions. The lower or northern division was called by the Hebrews the *Arvadites* (Arvadin, as the Phœnicians would have written it); the upper or southern division was afterwards called, *Rephaim*. A great many other names—indeed, we may note those of all the principal foreign nations inscribed on these monuments—are now satisfactorily ascertained: an immense advance is thus made in the cultivation of this difficult branch of literature, and one that will elucidate many most interesting points in the earliest histories of mankind.

BRUMMAGEM ARCHITECTURE.

Sir,—A contemporary journal has lately edified its readers by some curious criticism, in which he has converted what are wholesome principles in themselves, into absurdities by pushing them into extravagance and ridiculous excess. Every one readily admits that the merit of buildings is greatly enhanced by their being constructed with genuine and permanent materials. The satisfaction which visible beauties, those of design and form, afford the eye, is no doubt considerably increased when we feel assured that, owing to the durability of the materials employed, the work is calculated to last for an indefinite period, perhaps for ages. But it is surely going to a most rediculous extreme to stigmatize the use of fictitious materials, and cheaper *succedanea* for the more expensive kinds, as paltry Brummagem; and further, to decry in the most sneering manner, buildings of considerable merit for their design, merely because all their materials are not exactly genuine, or of so costly a kind as they might have been; for which offence their employers and not architects are answerable, since the latter would as willingly make use of Portland stone or even Carrara marble, as of Roman cement.

People want to have things appear costly, but to come cheap; and in order to gratify their unreasonable humours, several ingenious persons have set their wits to work, and invented a variety of artificial substances and compounds, and some as substitutes for the natural materials; and some of them imitate them so perfectly, as to be equally beautiful in appearance. But now starts up a most formidable critic, who pronounces his solemn ban upon every thing of the kind as arrant sham, deception, and Brummagem; sparing not even scagliola columns. Were his own sweeping denunciation as powerful as his will, it would infallibly prove a death-blow to a hundred inventions, patents, and manufactures. Adieu to Brown's scagliola and Keene's cement; to Bielefeld's papier-maché for architectural decorations; to Cartonpierre; to the crockery-ware for pavements, imposed upon us under the name of encaustic tiles; to veneering with costly woods for the "shamming" outsides of pieces of furniture; to paper-hangings in imitation of silk or velvet; to stamped leather; to bronzing—and why not also to gilding itself—to such "clumsy deception" and arrant make believe as that of coating wood-picture frames with gold-leaf, as a substitute for frames of the solid.

How it may strike you, Mr. Editor, I pretend not to say; but it does strike me that your "contemporary" has mounted upon a steed akin to that of Johnny Gilpin, and that he has carried him a very much greater length than he intended to go. Surely it was going quite far enough to go to the extent of abusing the "Companion to the Almanac,"—a publication till now spoken of at least *civilly* by the "civil" and representing the architectural information and remarks in it to be downright nonsense, without so much sputtering. According to him, "Freeman's-place" does not at all deserve the character given of it in the "Companion," as being a fine piece of street architecture, "exceedingly well-proportioned as to the quantity as compared with the entire surface." And why? because, forsooth, the ground-floor, which is treated as an arcade, and where consequently the openings are considerably wider than the piers, does not answer to the remarks upon the 'fenestration' generally. The critic, however, has chosen to shut his eyes entirely to all the rest, and fix upon the ground-floor alone, and in order to make it appear that it is that part which is especially noticed in the "Companion," he has turned the words "this façade is exceedingly well-proportioned, &c.," into "this *arcade* is exceedingly, &c." Still he does "not intend the slightest censure" on the design itself. Verily the architects must be vastly obliged to him for such a sop *à la* Mrs. Candour; and he does not intend the slightest censure, he only plainly denies the chief merit claimed for their building, assuring them that it is not the fine unbroken mass which the "Companion" fancies it to be. Pity that he did not turn round to the Royal Exchange, for he might then have fallen foul on that as being very much like a "conservatory," since in that structure also, the ground-floor consists chiefly of large glazed openings between comparatively narrow piers.

Of the writer's civility, both Barry and Hardwick come in for a share; the former is told that his fountains in Trafalgar-square are "intensely ugly!" the other that the ceilings of the drawing and council rooms in the new building of Lincoln's-inn, are but "Brummagem," and that such is the opinion of the benchers themselves. "The criticism," observes the critic, "to be sure, is not that of professed (qu. professional?) architects, but it is at least that of gentlemen, and men of educated taste." It is rather likely to strike most persons as being but very Brummagem sort of criticism, since it is to be presumed that men of educated taste, are able to discuss matters of taste with something more like reasons and arguments, than vilifying epithets and contemptuous expressions amount to.

Budownik.

THE MOSQUES OF KERBELA.

The entrance to Kerbela a "sacred" city held by the Schytes has been immemorially interdicted, not only to Christians, but to all but a certain people. Monsieur Lottin de Laval, a French archæologist having recently explored it, has addressed a communication upon it to M. Champollion, which appears in the *Courier d'Orient*. We avail ourselves of a quotation in the *Athenæum* for the following description of some of the buildings there. "I had been told that the two mosques of Kerbela were of unrivalled beauty—and I found it true: they exceed their fame. That of the Imaum Hussein is the most sumptuous. A vast pile of masonry supports the cupola; and this cupola is entirely built in bricks of copper, about eighteen centimètres square, covered over with plates of gold of extreme purity. Three minarets spring up by the side of this sumptuous cupola, adorned with painted porcelain, enriched with flowers and inscriptions as far up as the Muezzin's gallery. Above this gallery are open colonnades on the two minarets which flank the southern gate; and these colonnades and the final shafts are gilt likewise. The interior is in harmony with this unheard of splendour. The side walls are of enamelled porcelain, having a dazzling effect. Wreaths of flowers and friezes covered with inscriptions in Talik characters intermingle with remarkable elegance; and the cupola is adorned with mirrors, cut facet-wise, and with strings and pendents of pearls. The tomb of Hussein is placed in the centre of this cupola. It is a square mass, of considerable height,—covered over with viels wrought in pearls mixed with diamonds, sapphires, and emeralds." Three balustrades protect this mausoleum. The first is of massive gold, wrought with great art. The two others are of massive silver, carved with the patience and skill of the Persian.

"The mosque of Imaum Abbas, situate to the east, has no wealth of gold, silver, or precious stones; yet, in my opinion, it is, in an architectonic point of view, far finer. Two minarets only flank its southern gate, and tower above its bold and magnificent cupola—built in porcelain, covered with wide arabesques of a very grand character, and with flowers of gold on a ground of tender green. When the hot sun of Araby darts its burning rays on this richly-coloured mass, the splendour and magnificence of the effect are such as thought can scarcely picture and no painting can convey. The body of the edifice is octagonal,—adorned in enamel of a lapis-lazuli tint, and enriched by interminable inscriptions in white. All around are pierced, moulded windows, retiring within indented frames; and the great door, of the same style—flanked by two galleries, sustained by light and graceful columns—projects boldly out, in a manner closely resembling the porch of our ancient basilicæ. The court of this mosque is vast, square, and pierced at each angle with gates of great richness.

INSTITUTION OF CIVIL ENGINEERS.

The session was opened on Tuesday, the 13th inst. Sir John Rennie, president, in the chair. Press of matter forced us to postpone our notice of the proceedings.

The paper read was a "Description of the machinery erected by Messrs. Maudslay and Field at the Minories station, for working the London and Blackwall Railway," by A. J. Robertson, associate.

It commenced with a general account of the railway, quoted from Mr. Bidder's appendix to Mr. Stephenson's report on the atmospheric railway, as a parallel was then attempted to be drawn between the system of rope traction and that of propulsion by atmospheric pressure. The railway is about 3¼ miles in length, built upon arches, and worked by two pairs of stationary engines of 400 horse power and 200 horse power respectively, at the Minories and Blackwall termini. Wire ropes of 3¼ inches in circumference, or 1¼ inch diameter, formed of four strands, each composed of forty-two wires, extend along the length of the railway, guided by grooved pullies, and coiled alternately at each extremity on drums, which are worked by the engines. The carriages are attached to the ropes by "grips," which can be detached at pleasure; and the carriages are arrested by breaks, so as to deliver their passengers at the numerous stations along the line, from whence about two-thirds of the amount of traffic is obtained. The carriages travel alternately along either line; and the signals for starting and the general working of the line are given by the electric telegraph. At first, some difficulty was experienced from the repeated fracture of the hemp rope, which was then used. Wire ropes, with swivels at given distances, were, however, adopted; and at present, in about two thousand journeys each way in each month, not above two fractures occur. Mr. Stephenson and Mr. Bidder, who, with other members, took part in the discussion, gave some curious particulars of the difficulty arising from the twisting of the rope, which was the cause of the destruction of the hemp rope, which had not any swivels in it. The cause of the torsion could not be satisfactorily accounted for; but it was conceived, that the circumstance of the rope being lapped *under* the drum at the Blackwall end, and *over* the drum at the Minories end, might have some influence in the matter.

In the discussion, it was stated that the rope now used was formed of six strands laid round a hempen core, each strand composed of six wires also laid round a hempen core. That there was an evidence of very early corrosion whenever the wire came in contact with the hempen core. The power required to move the rope alone, was about 200 horse power with a hemp rope, and with the wire rope, on account of its greater weight, it required about 250 horse power. As to the question of expense; that point must not be considered abstractedly; it must be remembered that the traffic could not be carried on at the requisite speed by locomotives if they were required to stop seven times in 3¼ miles; it was therefore a question whether the system of rope traction, by which the traffic could be conveyed at a given speed, or whether the intermediate traffic, should be abandoned. The latter, commercially speaking, could not be done, and the rope system was persevered in. The expense of working the engines and rope was stated to be about fourteen pence per train per mile.

The annual general meeting of this society was held on Tuesday evening, 20th inst., when the following officers and council were elected:—Sir John Rennie, president; W. Cubitt, J. Field, J. M. Rendel, and J. Simpson, vice-presidents; J. K. Brunel, B. Cubitt, J.

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A room for the study of the life-model is open three evenings in the week. "The study of the old masters has been pursued at the Victoria rooms, where Mr. Miles has kindly deposited pictures for that purpose, during five days in the week, and it is proposed that this shall be continued during the winter months." "On every Thursday this room has been set apart for the establishment of a ladies' class, for studying from the life, under the direction of an artist" "It is hoped by the committee that classes for perspective may soon be formed, calculated as they are to be eminently serviceable to a great number of young persons, who sketch and draw as amateurs, and seldom go through the essential steps leading to accuracy of delineation. As an object of the highest importance, the committee have especially directed their attention to the establishment of prizes, to be competed for during the present year. To this they have appropriated 55*l.* and they are glad to state that other funds have been placed at their disposal, for this object, to the amount of 65*l.*; making a sum of 120*l.* to be contended for at the next exhibition."

The treasurer's cash account shewed the income to have been as follows:—Receipts of the exhibition of paintings, including sale of catalogues, 205*l.* 9s.; donations, 1,191*l.*; subscriptions, 97*l.* 5s.; and dividend on stock, 60*l.* 16s. 6d.: total, 1,554*l.* 10s. 6d. The expenditure, 321*l.* 0s. 9d.; leaving in the banker's hands a balance of 1,233*l.* 9s. 9d. So far the report.

The local papers contain statements as to a difference of opinion that has arisen amongst the members, and which involves rather an important principle. In November last Mr. West, the keeper of the observatory at Clifton, an artist, and a man of considerable natural ability, proposed two gentlemen for election. Their talents as artists were allowed; but because one of them held a place of small emolument under government he was opposed, and a "determination" to the effect that any one in trade, place, or situation is ineligible as an artist member, was carried by the artists present. In consequence of this, Mr. West felt *himself* virtually excluded, and resigned. In reply to a request from the members, that he would reconsider his resignation, he addressed to them a communication, from which the following is an extract:—"As you hope to be patronised you should shew the public you deserve it by rejecting at once and for ever the narrow gauge of exclusiveness, which you are now on; it cramps all energies, has an uneasy progress, and is a long time on the road. Adopt the broad gauge of a liberal feeling for art, and your success and progress, as a body, in the public estimation, will be much more easy, rapid, safe, and certain. Fling aside the mean prejudice, that because a man by necessity is obliged to follow a trade or hold an office, whatever his talent may be, 'you'll have none of it.' Remember Chantry was a ploughboy; Bird for a long time after he was able to produce talented work, was a tea-tray painter; was Lord Landsdowne disgraced in having the weaver poet Thom at his table—a journeyman weaver then as he is now? There are many such precedents and examples. Where would Bird, Chantry, and Thom have been had all held the absurd doctrine, that while a weaver —no poet; while a tea-tray painter—no artist? Where would most of our talented artists have been if all had adopted the 'narrow principle' that now appears to actuate the majority of you? Adopt the advice I respectfully offer to you as a body. By your own patronage and help to art, you will appear before the Bristol public as a lesson or an example—you will take an elevated position. Keep your exclusive feeling, and the city will look down upon you perhaps with contempt. Endeavour to assist talented individuals when or where they may be discovered; honour yourselves by making them and claiming them as one of your own; rescue ability or genius when depressed by poverty; fear no shame to grasp in fellowship the hand of talent, however fortune may have disguised it."

NOTES IN THE PROVINCES.

St. Margaret's church, Ipswich, is now undergoing considerable improvement. The whole of the pews will be removed, and open benches substituted; the lower part of the east window, which has been blocked up for more than a century, is to be re-opened and furnished with new tracery; and the whole church is to undergo a purification from whitewash, which the zeal of former churchwardens had given it. The western gallery will most probably be removed, as it not only disfigures the church, but impairs its stability. The alterations are being made mainly through the liberality of Mr. W. C. Fonnereau, under the superintendence of Mr. Ringham.——Water-works upon an extensive scale are about to be constructed at Great Yarmouth. Mr. Thomas Wicksteed is the engineer.——The Dundee water-works are being prosecuted with energy. The large reservoir and clean-water basin at Craigton Muir, on the Panmure estate, are considerably advanced; and, by the liberality of Lord Panmure, every facility will be given in execution of the work. The space to be covered by the reservoir will extend to about ninety or one hundred acres.——The London and Birmingham Railway Company have presented 150*l.* towards the repairs of the church of St. John, Coventry. It was presented in answer to an application for voluntary assistance. This is the only church in Coventry without a steeple.——The new barracks at Preston being finished, it is expected that the Lancashire Militia will shortly take possession of them.——It is confidently expected that the north wing of the University College Hospital will be commenced during the approaching spring. It is calculated to cost 4,000*l.* the whole of which with the exception of about 600*l.* is already subscribed for.——At Wickham-market, on new year's day, was laid the first stone of a new subscription building, to be appropriated to various public purposes. Much form and ceremony was used on the occasion.——A very large mill which was in the course of erection at Scarrs Foot, near Kendal, was almost entirely destroyed last week by a severe gale of wind and rain.——A fortnight ago, the upper story of a brick-built stable, in the occupation of Mr. Wood, Doncaster, fell with a tremendous crash. The immediate cause of the accident is not stated. Fortunately, no lives were sacrificed.——It is in contemplation to erect a new police station at Swindon, to consist of entrance-hall, rooms for superintendent &c., with a justice room above, and two wings containing cells for prisoners. The estimate for the building, excluding the site, is 500*l.* The magistrates at present administer justice at a public-house.——The ancient church of Colemore, near Alton, Hants, has lately undergone complete restoration. The roof has been stripped and repaired; the timbers freed from whitewash, stained, and varnished; an ancient transept, long desecrated, has been restored; and the whole of the church has been repaved, and provided with low seats of a very simple character.——A testimonial to the venerable Sir Charles Morgan, Bart., will shortly be erected on one of the heights of Tredegar-park. It is to be a column, which will command a view of the British Channel, and a considerable portion of South Wales. Sir B. Hall, of Llannower, is chairman of the committee to carry out the project, and has subscribed 100 guineas towards it.——The new church at Malvern Link, Worcestershire, was consecrated last week by the Bishop of Worcester. The font, which is spoken of as being "novel and elegant," was a donation of the Countess Somers. The Earl Somers gave not only sufficient land for the site, but also 500*l.* towards the endowment.——Considerable improvements at West Ham are in contemplation, among which may be mentioned the erection of a public hall, and the establishment of gas works sufficiently extensive to insure the whole district being well lighted.——It is proposed attempting to raise, by the proceeds of a bazaar, the existing deficiency of 1,000*l.* in the sum required to enlarge and improve St. Nicholas's Church, Yarmouth.——A company has been formed within the last forinight, whose object is to convert the Warwick and Birmingham Canal into a railroad. Sir John Macneil is the engineer.——Among the projects of the past week is one which contemplates the construction of very capacious wet docks, with an extensive range of wharfage, at Plymouth. A company is forming with this object in view. Mr. J. K. Brunel is the engineer.

CHRONOLOGY OF EGYPTIAN MONUMENTS.

Every day increases our knowledge of Egypt, and our means of further increasing that knowledge. The "Literary Gazette" of last week (recently enlarged, cheapened, and improved) reports a very important communication, made by Mr. Birch to the Royal Society of Literature, on the Egyptian obelisk in the At-Meidan at Constantinople, which throws a new and striking light upon the annals and chronology of Egypt, in connection with Bible history. The hieroglyphics record the fact, that Thothmosis III., the erector of the memorial, who reigned 1736 years B.C., had pushed his conquests as far as Naharaim, or Mesopotamia. The monolith shrine, commonly called the sanctuary of Karnac (which is now in the *magasin* of the Louvre), is a monument of the same reign; and Mr. Birch announced that he had examined the copy of the long hieroglyphic inscription which covers it, published by the society in 1823, and found it refer to the same transaction. He also announced the important fact, that he had found there the names of the two chief cities of ancient Mesopotamia, Babylon and Nineveh. The latter had before been read by Champollion on another monument; the former is Mr. Birch's own discovery. Mr. Osburn, than whom there is no Egyptian scholar more competent to give an authoritative opinion, took the opportunity of congratulating the society upon this first step towards any thing like precise information on the subject of the foreign names inscribed on the monuments of ancient Egypt. He also explained that another foreign name, occurring in the inscription on the sanctuary, written in hieroglyphics by the consonants *r*, *d*, and *n*, he had himself ascertained to be that of the founders of Aradus, an

ancient city of Phœnicia, situated on the Mediterranean to the north of Tyre. The name often occurs in the hieroglyphic legends of the conquests of the successors of Thothmosis, where the people are said to consist of two divisions. The lower or northern division was called by the Hebrews the *Arvadites* (Arvadin, as the Phœnicians would have written it); the upper or southern division was afterwards called, *Rephaim*. A great many other names—indeed, we may note those of all the principal foreign nations inscribed on these monuments—are now satisfactorily ascertained: an immense advance is thus made in the cultivation of this difficult branch of literature, and one that will elucidate many most interesting points in the earliest histories of mankind.

BRUMMAGEM ARCHITECTURE.

Sir,—A contemporary journal has lately edified its readers by some curious criticism, in which he has converted what are wholesome principles in themselves, into absurdities by pushing them into extravagance and ridiculous excess. Every one readily admits that the merit of buildings is greatly enhanced by their being constructed with genuine and permanent materials. The satisfaction which visible beauties, those of design and form, afford the eye, is no doubt considerably increased when we feel assured that, owing to the durability of the materials employed, the work is calculated to last for an indefinite period, perhaps for ages. But it is surely going to a most rediculous extreme to stigmatize the use of fictitious materials, and cheaper *succedanea* for the more expensive kinds, as paltry Brummagem; and further, to decry in the most sneering manner, buildings of considerable merit for their design, merely because all their materials are not exactly genuine, or of so costly a kind as they might have been; for which offence their employers and not architects are answerable, since the latter would as willingly make use of Portland stone or even Carrara marble, as of Roman cement.

People want to have things appear costly, but to come cheap; and in order to gratify their unreasonable humours, several ingenious persons have set their wits to work, and invented a variety of artificial substances and compounds, and some as substitutes for the natural materials; and some of them imitate them so perfectly, as to be equally beautiful in appearance. But now starts up a most formidable critic, who pronounces his solemn ban upon every thing of the kind as arrant sham, deception, and Brummagem; sparing not even scagliola columns. Were his own sweeping denunciation as powerful as his will, it would infallibly prove a death-blow to a hundred inventions, patents, and manufactures. Adieu to Brown's scagliola and Keene's cement; to Bielefeld's papier-maché for architectural decorations; to Cartonpierre; to the crockery-ware for pavements, imposed upon us under the name of encaustic tiles; to veneering with costly woods for the "shamming" outsides of pieces of furniture; to paper-hangings in imitation of silk or velvet; to stamped leather; to bronzing—and why not also to gilding itself—to such "clumsy deception" and arrant make believe as that of coating wood-picture frames with gold-leaf, as a substitute for frames of the solid.

How it may strike you, Mr. Editor, I pretend not to say; but it does strike me that your "contemporary" has mounted upon a steed akin to that of Johnny Gilpin, and that he has carried him a very much greater length than he intended to go. Surely it was going quite far enough to go to the extent of abusing the "Companion to the Almanac,"—a publication till now spoken of at least *civilly* by the "civil" and representing the architectural information and remarks in it to be downright nonsense, without so much sputtering. According to him, "Freeman's-place", does not at all deserve the character given of it in the "Companion," as being a fine piece of street architecture, "exceedingly well-proportioned as to the quantity as compared with the entire surface." And why? because, forsooth, the ground-floor, which is treated as an arcade, and where consequently the openings are considerably wider than the piers, does not answer to the remarks upon the 'fenestration' generally. The critic, however, has chosen to shut his eyes entirely to all the rest, and fix upon the ground-floor alone, and in order to make it appear that it is that part which is especially noticed in the "Companion," he has turned the words "this façade is exceedingly well proportioned, &c.," into "this *arcade* is exceedingly, &c." Still he does "not intend the slightest censure" on the design itself. Verily the architects must be vastly obliged to him for such a sop *à la* Mrs. Candour; and he does not intend the slightest censure, he only plainly denies the chief merit claimed for their building, assuring them that it is not the fine unbroken mass which the "Companion" fancies it to be. Pity that he did not turn round to the Royal Exchange, for he might then have fallen foul on that as being very much like a "conservatory," since in that structure also, the ground-floor consists chiefly of large glazed openings between comparatively narrow piers.

Of the writer's civility, both Barry and Hardwick come in for a share; the former is told that his fountains in Trafalgar-square are "intensely ugly!" the other that the ceilings of the drawing and council rooms in the new building of Lincoln's-inn, are but "Brummagem," and that such is the opinion of the benchers themselves. "The criticism," observes the critic, "to be sure, is not that of professed (qu. professional?) architects, but it is at least that of gentlemen, and men of educated taste." It is rather likely to strike most persons as being but very Brummagem sort of criticism, since it is to be presumed that men of educated taste, are able to discuss matters of taste with something more like reasons and arguments, than vilifying epithets and contemptuous expressions amount to.

Budownik.

THE MOSQUES OF KERBELA.

The entrance to Kerbela a "sacred" city held by the Schytes has been immemorially interdicted, not only to Christians, but to all but a certain people. Monsieur Lottin de Laval, a French archæologist having recently explored it, has addressed a communication upon it to M. Champollion, which appears in the *Courier d'Orient*. We avail ourselves of a quotation in the *Athenæum* for the following description of some of the buildings there. "I had been told that the two mosques of Kerbela were of unrivalled beauty—and I found it true: they exceed their fame. That of the Imaum Hussein is the most sumptuous. A vast pile of masonry supports the cupola; and this cupola is entirely built in bricks of copper, about eighteen centimètres square, covered over with plates of gold of extreme purity. Three minarets spring up by the side of this sumptuous cupola, adorned with painted porcelain, enriched with flowers and inscriptions as far up as the Muezzin's gallery. Above this gallery are open colonnades on the two minarets which flank the southern gate; and these colonnades and the final shafts are gilt likewise. The interior is in harmony with this unheard of splendour. The side walls are of enamelled porcelain, having a dazzling effect. Wreaths of flowers and friezes covered with inscriptions in Talik characters intermingle with remarkable elegance; and the cupola is adorned with mirrors, cut facet-wise, and with strings and pendents of pearls. The tomb of Hussein is placed in the centre of this cupola. It is a square mass, of considerable height,—covered over with viels wrought in pearls mixed with diamonds, sapphires, and emeralds." Three balustrades protect this mausoleum. The first is of massive gold, wrought with great art. The two others are of massive silver, carved with the patience and skill of the Persian.

"The mosque of Imaum Abbas, situate to the east, has no wealth of gold, silver, or precious stones; yet, in my opinion, it is, in an architectonic point of view, far finer. Two minarets only flank its southern gate, and tower above its bold and magnificent cupola—built in porcelain, covered with wide arabesques of a very grand character, and with flowers of gold on a ground of tender green. When the hot sun of Araby darts its burning rays on this richly-coloured mass, the splendour and magnificence of the effect are such as thought can scarcely picture and no painting can convey. The body of the edifice is octagonal,—adorned in enamel of a lapis-lazuli tint, and enriched by interminable inscriptions in white. All around are pierced, moulded windows, retiring within indented frames; and the great door, of the same style—flanked by two galleries, sustained by light and graceful columns—projects boldly out, in a manner closely resembling the porch of our ancient basilicæ. The court of this mosque is vast, square, and pierced at each angle with gates of great richness.

INSTITUTION OF CIVIL ENGINEERS.

The session was opened on Tuesday, the 13th inst. Sir John Rennie, president, in the chair. Press of matter forced us to postpone our notice of the proceedings.

The paper read was a "Description of the machinery erected by Messrs. Maudslay and Field at the Minories station, for working the London and Blackwall Railway," by A. J. Robertson, associate.

It commenced with a general account of the railway, quoted from Mr. Bidder's appendix to Mr. Stephenson's report on the atmospheric railway, as a parallel was then attempted to be drawn between the system of rope traction and that of propulsion by atmospheric pressure. The railway is about 3¼ miles in length, built upon arches, and worked by two pairs of stationary engines of 400 horse power and 200 horse power respectively, at the Minories and Blackwall termini. Wire ropes of 3½ inches in circumference, or 1¼ inch diameter, formed of four strands, each composed of forty-two wires, extend along the length of the railway, guided by grooved pullies, and coiled alternately at each extremity on drums, which are worked by the engines. The carriages are attached to the ropes by "grips," which can be detached at pleasure; and the carriages are arrested by breaks, so as to deliver their passengers at the numerous stations along the line, from whence about two-thirds of the amount of traffic is obtained. The carriages travel alternately along either line; and the signals for starting and the general working of the line are given by the electric telegraph. At first, some difficulty was experienced from the repeated fracture of the hemp rope, which was then used. Wire ropes, with swivels at given distances, were, however, adopted; and at present, in about two thousand journeys each way in each month, not above two fractures occur. Mr. Stephenson and Mr. Bidder, who, with other members, took part in the discussion, gave some curious particulars of the difficulty arising from the twisting of the rope, which was the cause of the destruction of the hemp rope, which had not any swivels in it. The cause of the torsion could not be satisfactorily accounted for; but it was conceived, that the circumstance of the rope being lapped *under* the drum at the Blackwall end, and *over* the drum at the Minories end, might have some influence in the matter.

In the discussion, it was stated that the rope now used was formed of six strands laid round a hempen core, each strand composed of six wires also laid round a hempen core. That there was an evidence of very early corrosion whenever the wire came in contact with the hempen core. The power required to move the rope alone, was about 200 horse power with a hemp rope, and with the wire rope, on account of its greater weight, it required about 250 horse power. As to the question of expense; that point must not be considered abstractedly; it must be remembered that the traffic could not be carried on at the requisite speed by locomotives if they were required to stop seven times in 3¼ miles; it was therefore a question whether the system of rope traction, by which the traffic could be conveyed at a given speed, or whether the intermediate traffic, should be abandoned. The latter, commercially speaking, could not be done, and the rope system was persevered in. The expense of working the engines and rope was stated to be about fourteen pence per train per mile.

The annual general meeting of this society was held on Tuesday evening, 20th inst., when the following officers and council were elected:—Sir John Rennie, president; W. Cubitt, J. Field, J. M. Rendel, and J. Simpson, vice-presidents; J. K. Brunel, B. Cubitt, J.

Locke, J. Miller, W. C. Mylne, R. Stephenson, F. Taylor, J. F. Bateman, Sir J. Mac Neill, and T. Sopwith, members; Lieut. Col. Colquhoun and S. M. Peto, associates.

The annual report of the council announced the past session to have been one of unexampled brilliancy, and the actual position of the institution to be very flourishing in every respect.

Telford medals were presented to Messrs. P. C. Delegarde and G. Edwards, and premiums of books to Messrs. Vulliamy, Bodmer, and Redman, for papers read last year at the meetings.

The opportunity of the presentation of the annual report, was seized by the council for explaining succinctly to the general body, their intentions in proposing modifications of the existing bye-laws. From the statement, it appears, that the present bye-laws are based upon a code of regulations framed when the charter was granted, and by these the institution has been governed since 1828. The great progress, however, made by the profession of engineering, demanded certain modifications, which have been made from time to time by the council, but always within the spirit and meaning of the actual laws. These they now seek to incorporate in the code of laws, in order that all the members may be cognizant of them. It is proposed that the members should form the first class, the associates the second, and the graduates the third class, the latter being assimilated to the student class of other societies. The associates are raised to the second class, on account of their acknowledged value in the society, and the efficient aid at all times given by them in every step tending to the advancement of the profession.

It is proposed that the president should be changed every two years, in order to secure a rotation of the office among the members, and render the attainment of the post an object of ambition, and an incentive to industry and perseverance among the younger members of the profession. Some opposition was expressed to these views of the council, which, however, appeared to meet the wishes of the majority, and the council announced their intention, of presenting the proposed modifications for the discussion of the special meeting of members summoned for January 27th.

EARLY CARVINGS IN WOOD.

At recent meetings of the Society of Antiquaries, many interesting communications have been read. Amongst them may be mentioned a letter from Mons. Delapierre, secretary of the Belgian Legation, relative to a document discovered amongst the Records in Flanders. He stated that numerous evidences of the connection which subsisted between England and that country in ancient times, had fallen under his notice, tending to prove the Flemish origin of many works of art or decoration still preserved in England. The works of the Flemish carvers in wood were in especial esteem, and numerous fine examples exist in the churches of Norfolk and other parts of England, which may be regarded as their productions. The document found by Mons. Delapierre related to a dispute which had occurred at Bruges, in the year 1441, between William Carebis, a Scotch merchant, and a certain monk of Melrose Abbey, acting on behalf of the abbot of that monastery, and Cornelius de Aeltre, citizen of Bruges, and master of the art of carpentry, who had agreed to supply certain stalls for Melrose, after the fashion of the stalls in the Abbey Church of Dunis, in Flanders, and carved according to the design of those which existed in the choir of Thosan, near Bruges. The work had been impeded by popular commotions at Bruges, during which the master carver had been deserted by his workmen, and suffered severe losses. It is thought that many similar evidences exist in the archives of Flanders, which would throw light on the History of Art in England, and shew the extent of that influence which the productions of our continental neighbours exerted at various times in forming the prevailing taste of the day in regard to works of Art, as well as the elegancies or decorations serving as accessories to domestic or church architecture. Several of the engraved works preserved in England, commonly termed sepulchral brasses, were produced by artificers of Flanders, although few similar examples are now to be found in that country.

IMPROVEMENTS IN THE CITY.

Sir,—In continuation of some observations on this subject at page 22, Vol III., allow me to state, that the intended street from Amen-corner to Lincoln's-inn-fields is a part of a large and comprehensive plan for improving the thoroughfares of the city, the said street being intended to receive such part of the traffic from London bridge and water side commerce as will pass through an intended improvement of the line of Cannon-street and Watling-street, which will thus relieve Cheapside of many thousand vehicles, both from the west end and east end of the town.

With respect to the improved line of Gresham-street (late Cateaton-street) although not quite satisfactory, it is yet not too late to make it answer, what I believe it was intended for, namely, to receive a portion of the traffic of Newgate-street. This could be accomplished by the removal of the block of houses at the south end of the General Post Office, St. Martin's-le-Grand, and forming a street from that opening (which you will observe is close to Newgate-street) to Lad-lane, and widening the latter. The property that would be required to form such a short but useful street is not very valuable.

The partial failure of Gresham-street, in not being made more straight and spacious, may be charged on the parsimony of the citizens. If the latter would come forward in a liberal manner, and assist the city authorities to carry out the several plans of improvements with a handsome loan, instead of discouraging them by continual opposition, I am persuaded there would be no cause for disapprobation after the completion of the works, but the city would be the most convenient, the most healthy, and the most splendid in Europe.

I am, Sir, &c., T. I. M.

FITTEST STYLE FOR INTERIOR DECORATION.

At a meeting of the Decorative Art Society, January 14th, the following theme was discussed, "Under what circumstances in modern decoration ought the Gothic or the Italian style to be preferred." As might have been expected in the consideration of such a subject, the observations were discursive upon architectural proprieties and taste; and it was not until nearly the termination of the proceedings that the arguments became more definite. It was remarked, that a backward tendency, by an application to the earlier state of the arts, for the decorations of the new palace of Westminster, should be regretted; and it was said that selected artists were on the continent for the purpose of studying the style and manner of Giotto, Cimabue, and that school. It was argued that precedents ought to be studied, but not looked upon so much as fixed rules for embellishments, and that past efforts should rather be considered as examples of what had been applied under certain circumstances and restrictions, than as being the only ones suitable and appropriate to any recognized and imitated form in architecture; also that it ought to be open for the present age, by an application of superior drawing, execution, or colouring, to impart a new and peculiar effect to forms of another period. This argument was pursued by stating, that it was necessary only to have regard to principal lines in the arrangement of harmonizing and contrasting forms of ornament, to create that unity and completeness of expression so striking when produced, but which is seldom attained, from the deficiency of scientific deliberation upon *mere* ornamental details.

A discussion then arose upon the restrictions to be regarded in fitting and furnishing the interior; and allusion was made to King's College Chapel, Cambridge, where the screen, stalls, stained-glass, &c., are in the style of the Revival, and have been condemned as displaying impure taste. It was contended, that the Gothic style would be found to impose great difficulties in rendering all modern conveniences and necessities in unison with it, and yet obtain grandeur of effect. Another question was also prominently sustained, viz. as to what extent imitative decoration in colour, such as arabesques, may be associated with the geometrical ornaments in Gothic architecture; and which, if either, should preponderate in embellishment; also, what limits ought to be regarded in the treatment of each? Several observations were also made upon ecclesiastical decorations, recently executed in and near to the metropolis; and in the description, considerable merit was said to be found in some of them. The meeting adjourned to the 28th inst., with the desire to collect further determinate opinions on this important question.

YORKSHIRE ARCHITECTURAL SOCIETY.

A quarterly meeting of the above society was held in its rooms in York, on the 15th instant; Mr. E. B. Wheatley in the chair.

After the Rev. J. Sharp, one of the secretaries, had read the minutes of the previous meeting, grants of 5*l.* towards the stained glass in Lund Church, and 5*l.* towards encaustic tiles in Maston Church, Yorkshire, were made.

The Rev. J. Fawcett (another of the secretaries) brought forward the subject of the restoration of the parish church, Bradford, Yorkshire, and exhibited two large crayon drawings of the church *as it is*, and the church *as it is to be*. The reverend gentleman stated, that above the present plaster ceiling of the nave, there was a very fine and perfect perpendicular oak roof, which it was the design of the restoration committee to open out. He suggested that a small grant made by the society towards such an object, would not only be most thankfully received, but also that it would have the effect of bringing into more public notice the claims of the society which made it. Mr. E. Smith, Acomb, York, after this gave notice of a motion for the next meeting, for the sum of 20*l.* towards this very desirable object.

The Rev. J. Fawcett then brought before the notice of the society, the *British Archæological Institute*, which proposed to hold its annual meetings in York, in the autumn of the present year. He said that he thought the Yorkshire Architectural Society would do well to render its services to the institute, and offer to it all the accommodation in its power. The committee requested Mr. Fawcett to communicate to the institute that the Yorkshire Architectural Society would most gladly offer the use of its rooms for the forthcoming session, together with any other assistance which might be considered desirable.

GAS.

Sir,—The subject of gas is of such general importance, that a few remarks thereon, suggested by the letter of "Carbon," in No. 153, will not, I trust, prove unacceptable to the readers of your interesting and well-conducted work, the circulation of which I am well aware is not confined to the building trades only.

Every impartial person will agree with "Carbon" in his remarks respecting meters. The Chartered Gas Company enforce the use of them by all their customers; and doing so, has been productive of a saving to the consumer as well as advantage to the company. It would be well for all parties if no gas were to be supplied except by meter; but it is not easy to see how that system would, as "Carbon" asserts, *compel* the companies to manufacture gas of *greater illuminating* power. I should suspect it would be more likely to have a directly opposite effect, if it had any at all, which I doubt.

The illuminating, or "radiant" power of gas depends upon the proportion of carbon it contains. The atomic proportions of carburetted hydrogen (coal gas) are, hydrogen 2 + carbon 6 = 8. The proportions in oil gas are, hydrogen 2 + carbon 12 = 14; and its radiancy is from twice to four times that of coal gas, dependant upon its freshness and the sort of burner used. London gas seldom contains its due proportion of carbon, in consequence of its being an object to produce *good coke* as well as gas. In the northern counties, where coal is so much cheaper, coke is comparatively valueless; and there every attention is solely directed to produce gas in perfection. When I was at Liverpool, ten years ago, I could not get coke from the gas works—it was so exhausted in the retort as to be useless. Here,

on the contrary, I find it is almost as commonly used as coal. It is therefore with good reason our companies style themselves "gas light and *coke* companies."

It is with pleasure I perceive that the price of gas has been so much reduced at Liverpool, and have no doubt but that a very considerable reduction of price in London is practicable; but it by no means follows, that the companies here will be able to supply gas at as low a rate as the northern companies do, nor does it appear reasonable to expect it. We must bear in mind that they are mercantile speculations, and of course have to look to the interest of their shareholders as well as of their customers. Independently of the enormous amount of capital sunk in their works (which must bear interest), it is to be considered that their expenses are much greater: coals before they reach the works cost more; iron is in the same position; wages are higher, and materials for buildings and repairs cost more;—while from the never-ending disturbance of the pavement for repairs of roads, sewers, and water-pipes, the leakage of the pipes is much greater. It is a barbarous system throughout, and beyond expression costly; yet from the number of conflicting interests there seems but little prospect of a remedy.

One word of advice to consumers of gas. It is very true that the inspectors ought to explain the construction and use of meters to them; but let no consumer therefore think that he understands the matter, and, should any thing go wrong in the supply, take the remedy into his own hands. The inspector is the proper officer appointed to see that the supply is unimpeded; and should any escape of gas or stoppage take place, let the consumer instantly send for him. I know an instance where the landlord of a tavern, finding a slight escape of gas at the union-joint of the meter, took his carpenter's pincers to screw it tighter, broke the joint; and before the inspector could arrive, the cellar and whole house was full of gas. When the inspector reached the spot, the landlord, with an unpardonable carelessness, was about to precede him to the cellar *with a lighted candle!* but was pulled back by the inspector, who descended in the dark with a lump of clay in his hand, with which he plugged the pipe. Had an explosion taken place, the consequences would have been awful—the house being full of people. It is strange that no one thought of the main cock all the time; but that shews the prevailing ignorance of the proper course to be pursued. This event took place in this neighbourhood only a few months since, and ought to be a warning.

I am, Sir, yours, &c., J. A. E.
Camden Town, Jan. 19th, 1846.

Correspondence.

BUILDERS' ESTIMATES.

Sir,—In last week's Builder you gave a statement of the tenders for rebuilding part of Portman-market, and properly ask "How is this frightful difference to be explained?" I appeared for Messrs. King on that occasion, and remarks having been made as to the lowness of the lowest tender and of mine, Mr. Williams said, he took it lumping. I replied, jumping and not lumping, I was sure. Not having heard any thing further, I presume the lowest party will do the work on finding security for the due performance of it. Two similar instances have recently occurred: the first case was a public-house to be built at Walworth for Mr. Ireland, of Fetter-lane; the result of tendering was, a person named Brown got the work at about 800*l.*, or two-thirds the amount of the next party; of course he found securities, and when he had raised the brickwork up to the plate for the two-pair floor, he could go no further, and parties again had to tender for the finishing. I did so for the party who was next him in the first estimate, at 600*l.* The securities then found out that they were likely to be severe losers, and agreed themselves to finish it, but they did not thoroughly do so, as my employer did it after all. The second case was with regard to works to a gentleman's house at Tollington parky in which, for building a large drawing-room, and offices under, and sundry alterations to the house, a man named Buck got the work at 180*l.*, and the next tender was 350*l.* I made the remark to the architect that the 180*l.* were only wages for the job, leave alone what the man gave for material; the answer was he should have good securities! Now, Mr. Editor, it is by exposing as you do, this frightful state of things which may be the means of bringing parties to their senses, and lead others to ask what the material will cost, and how much for labour will be required, before they are gulled into becoming security. I am, Sir, &c.,

Islington. E. Porter.

DILAPIDATIONS.—CHARGE FOR OCCUPANCY.

Sir,—In your valuable publication of November 22nd, you insert a letter from "A Surveyor," on the subject of "Charge for occupancy," after the expiry of term of a lease, during the time necessary to complete repairs, neglected by a lessee; and you give in a general way, an opinion that such a charge is not customary and could not be recovered, and ask the opinion of your legal friends.

In your number dated December 6th, Mr. Tattersall replies rather fully; and in that of December 13th, Mr. George Smith writes to the same effect; and here, so far as I have seen, the matter ends, which I much regret, for as a landlord I cannot but take a serious interest in the subject; and, therefore, most respectfully draw your attention to it by asking you to peruse carefully your correspondents' letters, and express a hope of seeing the question more fully discussed by both the professions.

Before I conclude, permit me to differ entirely from the argument used, viz. that by non-notice, the lessee is discharged; for the power of entry reserved to the lessee is a privilege, not an obligation, and is frequently disused from courtesy; whereas the lessee's covenant is an obligation, solemnly entered into under hand and seal.

I am, Sir, yours, &c.,
London, January 9th. A Landlord.

WESTMINSTER ABBEY—CONTEMPLATED ALTERATIONS.

The change of deans, four having held the appointment within a period of about two years, has tended to interrupt the anxious wishes of the chapter, to devise means of accommodation for the very large increase of persons who throng this venerable church, especially on Sundays, when the rush to get in (until Dean Wilberforce caused the doors to be opened half an hour before the service began) was frightfully alarming.

The choir will be enlarged by placing the beautiful oak skreens back, so as to include the pillars within the choir; more light will be obtained, by filling the upper parts of the pannels with plate-glass, like Canterbury Cathedral; the prebendal stall will be close to the skreen, and two rows of seats for the laity in front of them on either side.

The seats in the centre will be made to accommodate eight persons, four on either side of a division, to avoid confusion in passing each other; these will be continued to a convenient distance from the steps to the communion; the pews will, of course, be removed; the organ also will probably be removed to the arches on either side of the loft, which will be formed into a gallery, capable of accommodating a large number of persons, without altering the appearance or character, of the edifice, *which will then be seen from east to west* in one uninterrupted view, shewing the beautiful west window to very great advantage. □

Immense Log of Mahogany.—A most extraordinary log of mahogany, lately imported from Cuba, is now to be seen at the east wood wharf of the West India Import Dock. We were not able to ascertain its cubic measurement, but so immense is the mass that it has attracted the attention of all persons engaged in the trade. Its qualities of grain and texture are said to surpass its dimensions. It is the property of Mr. Deletti, who has purchased it for the large sum of 1,000*l.*

Safety Harbour at Achill.—Sir Richard O'Donnell, Bart., has offered to give 1,000*l.* if the Government will give the remaining amount, to construct a safety harbour at Achill.

Miscellanea.

Colour in Decorations.—We may estimate the prosperity of a nation by the general enjoyment amongst its people of the necessaries and luxuries of life, but we can form an opinion on its intellectual refinement only by the manner in which the first principles of taste are exhibited along with such enjoyment. The decorations of temples and other public buildings form no true criterion of judgment in this respect. These, for the most part, are the works of great artists, and great artists but seldom appear upon the stage of human life. Such men possess intuitively a knowledge of the principles to which I have alluded; but, although the same degree of knowledge can never be imparted by instruction, yet such a general understanding of the principles alluded to may be diffused amongst a people as to elevate the character of the most simple attempts, and thus assist in rendering its effects visible through all the ramifications of society. But with all our Academies of Art, Schools of Design, Institutes, Associations, &c., there has as yet been no such general dissemination of these first principles; and, consequently, there exist no statutes in the republic of art,—no code of laws for the guidance of public opinion in forming its judgment upon the merits of such works as are subject to the rules of æsthetics. Under such circumstances the decisions regarding works of ornamental art and matters of taste cannot be expected, and it is thus we, every day, see the principles of design openly violated, not only with impunity, but frequently with encouragement. Nor can it be expected that the public should endeavour to acquire a knowledge of laws which many of those who profess to follow high art seem to disregard. Attention to the elementary principles of harmonious colour in the decoration of our ordinary dwellings, in such of our manufactures as admit of it, and even in our dress, will, in some measure, assist in diffusing one kind of knowledge of what constitutes visible beauty, and the more effectually that we are in our climate, for a considerable portion of the year, compelled to dispense with the gratification and instruction which external nature affords the eye, and in the absence of works of high art, to content ourselves with that which the interior decorations of our dwellings present.—*Hay's "Principles of Beauty in Colouring."*

Cask-making by Machinery.—Considerable sums of money have at various times been expended in trying to bring to perfection machinery for making casks, but heretofore this object has been unattained, some parts always having to be finished by manual labour. A very ingeniously constructed machine (which we have had an opportunity of inspecting) has at last, however, been constructed by Mr. W. Wild, of Bedford-street, Broughton-road. The lags or staves, hoops, and heads, are, in the first instance, dressed off by other machinery, which is being constructed for the purpose; afterwards, the finishing machine is fed with the previously-prepared heads, hoops, and staves, and will in two minutes' time turn out a complete barrel, vastly superior in workmanship to what has hitherto been effected by manual labour. Old barrels can also as easily be repaired by the same machine, the only difference in time being occupied in the taking to pieces of the old barrels previously to substituting such fresh staves, heads, or hoops as may be required previously to feeding the machine. The barrels, when completed, are vastly superior to any heretofore turned out by manual labour, the machine fitting each stave as close as though the whole barrel had been formed of one piece of timber, thus doing away with the necessity, when made by hand, of filling up any defects with rushes, which plan it is well-known has the effect of rendering casks very foul, unless extraordinary care be taken, and consequently much time occupied in thoroughly cleansing them. The inventor is an operative, who has spent much time and money in bringing his machine to perfection, and is anxious to patent it, but his limited means are inadequate to the expenses.—*Manchester Courier.*

Vacant Lectureship.—The office of lecturer on the principles and practice of geodetical operations at the College of Civil Engineers, Putney, is at present vacant.

MOVING HOUSES IN AMERICA.—"One need not walk through the many streets in New York, without witnessing in one of them a removal or lifting up of a house; this is almost peculiar to American mechanics, and I was never tired of looking at it. The practice has contributed very much to the straightness and uniformity of the streets, and so perfectly at home are they at it, that if an advertisement were to appear in the 'Sun,' the 'Herald,' or the 'Tribune,' to remove the London Mansion House to Hampstead Heath, there would be several offers for the job. As for the north side of Middle-row, they would think nothing of removing it bodily at once to the Model Prison at Clerkenwell without any of the young *misses* of the family being in the slightest degree interrupted in their usual avocations. As for the everlasting and dangerous nuisance of Holborn Hill, which I have been looking at more in sorrow than in anger for these forty years, in New York it would be levelled in a week. A worthy tradesman in the city of Brooklyn, opposite New York, wanted to convert his two parlour windows into a shop-front; 'No, no,' said the builder, 'don't throw away your parlour, I will lift the house up, and build you a much better, loftier, and more spacious shop, where the parlour now stands. The screws and timbers were accordingly brought, and I saw the two-story brick house go up slowly and imperceptibly, whilst the daughters were looking out of window, as if nothing was going on more than usual. I watched the alteration every time I crossed the ferry to Brooklyn, and in course of two or three weeks the tradesman was occupying his new and handsome *store*, as the shops are called."—*Rambles in the United States and Canada.*

MEETINGS OF SCIENTIFIC BODIES.

During the ensuing week.

MONDAY, Jan. 26.—British Architects, 16, Grosvenor-street, 8 P.M.; Geographical, 3, Waterloo-place, 8½ P.M.

WEDNESDAY, 28.—British Archæological Association (Western Literary Institution), Leicester-square, 8½ P.M.

THURSDAY, 29.—Royal, Somerset House, 8½ P.M.; Antiquaries, Somerset House, 8 P.M.

FRIDAY, 30.—Royal Institution, Albemarle-street, 8½ P.M.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of works on the North Wales Railway.

For the erection of new buildings and alterations at the George Inn, Buckden, near St. Ives.

For supplying the Stargard and Posen Railway Company with 12,677 tons of iron rails of first quality.

For the erection of a portion of the River Wall of the Liverpool Docks, being about 360 feet in length by 40 feet in height.

For supplying the town of Gravesend with the following stones:—York Flag, Castle Hill, Rock Hill, Aberdeen Granite, and Devonshire Kerb. Also for the performance of pavement works.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, being the Churwell contract in length about 2½ miles, and the Dewsbury contract in length about 3½ miles.

For the execution of works on the North British Railway, being the Hawick Branch.

For the supply of twenty-five goods waggons, 5,000 stone blocks, and 20,000 sleepers, to the Maryport and Carlisle Railway Company.

For the supply of 150,000 sleepers to the Midland, Nottingham, and Lincoln, and Syston and Peterborough Railway Companies.

COMPETITION.

The directors of the Eastern Union, and Ipswich, and Bury St. Edmunds Railways, offer a premium of one hundred guineas for the most approved plan (with estimates) of a joint passenger and goods station to be erected at Ipswich; and a further premium of fifty guineas for the second best.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Dry Drayton, Cambridgeshire: 160 ash and elm timber trees, some of which were felled last season. They are of excellent quality.

At Mistley, Essex: an extensive assortment of oak, ash, elm, and soft-wood timber.

At Ashbooking: 200 Scotch firs, 40 ash, elm, and willow trees, &c.

At York-street, Rotherhithe: several loads of English and African oak in planks, &c., 10,000 oak, locust, and fir treenails, &c.

At Novar Rosshire: upwards of 10,000 Scotch fir timber trees.

At the Spread Eagle Inn, Southweald, Essex: 1,000 alder poles of fine growth; 500 oak ditto.

At Springfield Wharf, Essex: 13,000 oak, elm, and fir sleepers, &c.

TO CORRESPONDENTS.

"Practical Man" *can hardly be serious in saying that we should refuse to advertise goods proferred at low price. Where is the line to be drawn?*

"B. B."—*The drawing of bridge sent so closely resembles in arrangement a mode recently patented by Mr. Russell, that we do not think it desirable to engrave it.*

"G. F." *reached us too late for present No.*

"Dr. A." *shall hear from us.*

"T. A. H."—*We must know something more of Rutter's light before we can insert praise of it. In a professional capacity, we have recently employed Messrs. Platow to fit up one of the lights, and shall presently be able to judge.*

"Referees' Awards."—*We shall give a digest of several next week.*

"J. D."—*We will look to the chapel, &c., in New Oxford-street.*

"The Son of a Builder."—*Write to Mr. Laing, 5, Upper Smith-street, Clerkenwell.*

"A. C."—*The whole of the Building Act was given in a number of* THE BUILDER *at the end of* 1844, *but it is out of print. Either Laxton's or Skyring's Price-book will answer his purpose.*

"C. E."—*Write to the secretary of the company.*

"T. Y. K." and "F. S."—*A line addressed to Mr. Thomas Fry, Birkenhead, will doubtless elicit the desired information.*

"A. J. G."—*We cannot comply with his request.*

"F. H. R." *will find a mode of setting pencil drawings in our last number.*

"Budownik."—*We hope to be excused for a few omissions. We have a regard for our more ancient contemporary.*

"J. E."—*We advise an advertisement.*

Received:—"R. C. L.;" "F. B. L."

ADVERTISEMENTS.

TO ARCHITECTS AND BUILDERS.

GEORGE BARTLETT, Architectural Modeller, 33, Duncan-terrace, City-road, begs leave respectfully to inform Architects and Builders that they can be supplied with every description of Plaster and Cement Architectural Ornament in every style, from designs of the most eminent Architects of the day. An endless variety of trusses for shop-fronts. 1,000 feet of enriched soffit or bed mould delivered to order at twenty-four hours' notice.

G. B. has a vacancy for an out-door apprentice.

REMOVAL.

THOMAS JOHN CROGGON

Begs to inform the Trade that he has removed to 8, LAWRENCE FOUNTNEY-HILL and THREE CRANES WHARF, 69, Upper Thames-street. Orders addressed to either place for ROMAN CEMENT of genuine quality will be executed with promptitude and the strictest regard to quality and economy.

TO BUILDERS, PLUMBERS, ENGINEERS, AND IRONMONGERS.

BEST PAN WATER-CLOSETS, with round Valve, complete, 30s. each.

Plumbers' Bib, Ball, and Stop Cocks, ½ in., 20s.; ¾ in., 28s.; 1 in., 56s. per doz.

Lifting Force Pumps on Planks, 2½ in., 4*l.*; 3 in., 4*l.* 15s.

Washing Coppers, 1s. 1d. per pound.

Water Balls, ¾ in., 15s. per doz.

Gun Metal Steam Cocks, Safety Valves, &c., and every description of Brass and Copper Work equally low, at A. McGLASHAN and Co. Brassfounders and Coppersmiths, 16, Long-acre.—N.B. Every article warranted.

ROYAL ADELAIDE GALLERY, Lowther Arcade, Strand.—Professor Keller's New Groups and Tableaux; also a Grand Promenade Concert, under the direction of Mr. A. Sedgwick; principal vocalist, Miss Pearce. After the concert on Friday, a Lecture on Phrenology, by Mr. Logan; also the effects of the Laughing Gas. The Gas Microscope on Thursday and Saturday. Nickel's Compressed Air, and Pilbrow's Atmospheric Railway; the Dissolving Views and Chromatrope every evening. Poses Plastiques, by Professor Keller. Conductor, Mr. A. Sedgwick; Leader, Mr. Zerbini (leader of the balls at the Court and Almack's).

ROYAL POLYTECHNIC INSTITUTION.—The Lectures selected for this period of the year, by Dr. Ryan and Professor Bachhoffner, in Chemistry and Natural Philosophy will be illustrated by interesting and beautiful experiments. A Lecture on the Prevalent Disease in Potatoes will be delivered by Dr. Ryan, and also on the Atmospheric Railway, by Professor Bachhoffner, a working Model of which, carrying several persons, is exhibited daily. The additions to the Opaque Microscope, Dissolving Views, and Chromatrope are very effective. The Physioscope. Submarine Experiments by means of the Diver and Diving Bell. Among the various additions to the Working Models is Coleman's new American Locomotive Engine, for ascending and descending Inclined Planes. A magnificent Collection of Tropical Fruits. Mr. Downe, the celebrated Flute-player, will take part in the Music, conducted by Dr. Wallis. Open from Eleven to half-past Five, and from Seven to half-past Ten in the Evening.—Admission, One Shilling. Schools, Half-price.

QUICK DISPOSAL OF HOUSE PROPERTY BY PRIVATE TREATY.

PROPRIETORS of HOUSE PROPERTY, of every description, desirous of effecting a sale with facility, and avoiding undue publicity, are invited to send Particulars to Messrs. BECKWITH and CO., Estate Agents, 25, Bucklersbury, who have a very extensive buying connection, so classified, that they can immediately submit whatever may be put into their hands, and, in most cases, effect a sale by Private Contracts quicker than the Particulars for a Sale by Auction could be printed.—No Charge made until Business is completed.

TO CARPENTERS, BUILDERS, &c.

WM. BANGHAM, FURNISHING UNDERTAKER, 7, Stockbridge-terrace, corner of Vauxhall and Pimlico roads, begs to inform the Trade they can be supplied with every article requisite for funerals at the lowest furnishing prices, and a liberal credit if required.

For the convenience of the trade every facility is studied. LEADEN COFFINS may be obtained full trimmed in an hour, and every other article on the shortest notice. Cambric and Satin Shrouds, Winding Sheets, &c. Horses, Coaches, Feathers, Velvets, Heraldry, &c. Country orders punctually attended. No extra charge for delivering large coffins within ten miles.

WILSON'S PATENT VENTILATING SPIRAL CHIMNEY POT, for the cure of smoky chimneys (manufactured by J. PORTER), is the ONLY article for the purpose which assists the draft of the chimney by an external propelling power. Upwards of fifty were fixed last winter on the chimneys of Buckingham Palace, and Windsor Castle, with great success. This Chimney-pot is not only the best and most effectual ever invented for the purpose named, but stands unrivalled in its ornamental appearance. The public may be supplied with the above useful article by any of the respectable ironmongers, or at the sole manufactory, Southwark-bridge Iron Roofing Works.

DAY'S PATENT WINDGUARD, for ventilating churches, hospitals, factories, theatres, breweries, malt-houses, club-houses, shops, bed-rooms, smoking-rooms, school-rooms, nurseries, stables, larders, kitchens, offices, ships, mines, vaults, tunnels, &c. Also for preventing down draft; and is guaranteed to cure all smoky chimneys caused by wind; and entirely supersedes the use of revolving cowls, or any thing moveable or unsightly on the tops of chimneys or ventilators.

The object of this invention is to create a draft where otherwise it would not exist, by the spontaneous action of the external air. The Windguard forms a pleasing octagonal pillar, and by its peculiar construction to carry out the principle on which it is based, which consists of the wind giving a disposition for a vacuum within, thereby causing a continual upward current about equal to the velocity of the wind at the time acting upon it, which averages about six feet per second thirty days out of thirty-one; therefore, will nearly at all times ensure a continual change of air, being no impediment to spontaneous ventilation, even on a perfectly calm day. One five feet square will ventilate a building containing upwards of 1,000 persons. The Windguard applied to ships and steam vessels, in the form of a sky-light, prevents rain or the sea entering within, however boisterous the weather may be, thereby affording excellent ventilation as well as light. The Windguard is simply applied for effectually ventilating bed-rooms, nurseries, smoking-rooms, offices, &c., causing the air of the apartment to be at all times as pleasant as can be desired. It is fixed at the top of the chimney, in addition to which a cast-iron frame and valve (about one foot area), made to open and shut at pleasure, is let into the flue, near the ceiling of the room, to allow the constant ascending vitiated air being immediately carried off. The opening is guarded by a neat venetian blind or grating; and so powerful is the effect on a windy day that if a handkerchief be thrown up to the grating, it will remain there—i. e. if the valve be open. In winter the valve would be only partially open, to allow the smoke to ascend, but if the room be found too cold can be entirely closed. The Windguard applied to the tops of chimneys prevents all annoyance from smoke (caused by wind); indeed, where it does not, nothing else applied at top will (of the same size); care, therefore should be taken to have the proper size applied. It is simple in its application, reasonable in price, ornamental in appearance; no machinery or anything moveable in it, therefore, cannot get out of order; free from noise or any unpleasantness whatever; not liable to choke up with soot; no obstacle to the machines used for sweeping chimneys. May be had of all respectable ironmongers in town and country; and may be seen daily in operation, where its powers and usefulness are exhibited by the severest tests, at THE PATENT VENTILATING WORKS, COMMERCIAL-ROAD, PIMLICO, LONDON; where also may be seen Mr. G. T. DAY'S plans (illustrating the different applications of his Patent Archimedian Ventilator and his Portable Water Apparatus) for effectually Ventilating, Warming, and Cooling the Air of Buildings, Ships, Mines, &c. &c. By the use of these inventions many thousand cubic feet, or any quantity of pure warm or cold air, can be guaranteed to be continually exchanged per minute, day and night, winter and summer; thereby insuring, at all times, free ventilation to the rooms and passages of buildings, &c. from the basement to the roof, at the same time in such a manner as shall not be inconveniently perceptible. The size of the apparatus depends on the nature and use of the building and its occupants. The Patentee has been honoured by his inventions being applied at the following places:—

Windsor Castle, Buckingham Palace, St. James's Palace, Claremont Palace, Walmer Castle, the Houses of Parliament, New Conservative Club, White's Club, Travellers' Club, Oxford and Cambridge, Parthenon, Wyndham, Army and Navy, Senior United Service, Junior United Service, Admiralty, British Museum, Somerset House, Custom House, Mint, Hon. Artillery Company, H. M. Salamander, Trinity House, Ordnance, Greenwich Hospital, Christ's Hospital, Westminster Hospital, Bethlehem Hospital, Surrey Lunatic Asylum, New Royal Exchange, Mansion House, Goldsmiths' Hall, Fishmongers' Hall, Haberdashers' Hall, Dyers' Hall, Grocers' Hall, Armourers' Hall, Weigh House Meeting-house, Hanover-square Rooms, Theatre of the Westminster Literary and Scientific Institution, Grand Cigar Divan, Strand, City Club, and many other Public Buildings in Town and Country, as well as to the Mansions of many Noblemen and Gentlemen. Licenses granted for Manufacturing the above. Drawings and Plans made for Ventilating and Warming Buildings of every description.